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TEXTILE Manufacturing WORLD

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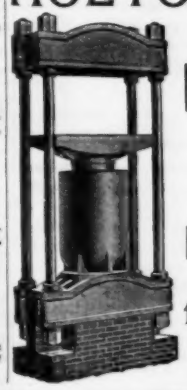
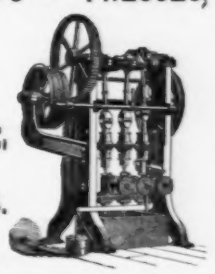

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THE
TEXTILE MFG. WORLD

A MONTHLY JOURNAL
Devoted to the Development of the Textile Manufacturing Industries of North America.

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DIRECTORY TO CONTENTS.

Editorials,	*p.* 2, 3.
Cotton Market,	3.
Woolen "	6.
Yarn Dept.,	4, 5.
Colors-Dyeing,	16, 17, 18, 19.
Knitting Dep't.	10, 11, 12, 13.
Woolen,	6, 7, 8, 9.
New Finishing Machinery,	6, 7, 8.
Cotton,	14, 15.
Power,	20, 21, 22, 23.
Mill News,	24, 28.
New Machinery coming on the Market,	3.
List of Textile Patents,	3.
Wants, Mills For Sale, etc.,	27.
Reference List of Textile Products, Raw Stock and Supplies,	25, 26.

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BERTRAM LORD becomes a member of our firm, on and after this date. The firm name remains unchanged.
GUILD & LORD, Publishers.
BOSTON, Mar. 1, 1894.

A Slight Improvement.

There has been more doing in the dry goods markets lately and the manufacturers have felt the slight improvement. In almost every branch of the textile trade, there has been an increased volume of business, but at very unsatisfactory prices. The volume of business is not by any means normal for this time of year, but trade is no longer stagnating, and the mills with attractive bargains are getting orders.

Fine Goods Must Suffer.

As we have several times pointed out, the burden of the new tariff, if it is passed, will fall most heavily upon the manufacturers of a finer grade of goods, wherein the labor cost forms a higher percentage. Every manufacturer and almost every operative appreciates this plainly enough, although to the tariff tinkerers in Washington it seems to be an incomprehensible fact.

The great reason why the American manufacturer wants a fair duty, is, to compensate him for the great difference in price of American and foreign labor, consequently just in proportion as the percentage of labor enters into the cost of production, should the tariff be increased. The proposed revision of the finance committee of the Senate, whereby a level duty of 30 or 35 per cent. was to be imposed on cotton yarns and fabrics, in place of the specific duties now prevailing, wholly ignored this fact, and on a high grade of fabric, where the labor cost is twice as much per cent. as in a lower grade, a level tariff of thirty per cent. on both kinds of fabric would only be half as much protection on the higher priced fabric as on the lower. Fortunately, this change was not reported to the Senate. The fear of the new tariff has affected the finer lines of goods to far greater extent than the lower priced fabrics, and the mills which have been fitted up at great expense to turn our finer kinds of yarn and goods, are threatened with serious disaster, unless their plants are extensively remodelled.

The Two Loom Difficulty.

We regret to learn that the trouble which originated at the Lymansville Mills over the weavers' refusal to operate two looms on certain styles of dress goods, seems likely to become more extended in the vicinity of Providence.

If the request of the manufacturers was an unjust one, the operatives would have better ground for justification, but as we understand it, their only motive for refusal is, that should they accede to the request of the manufacturers and run two looms, a certain number of operatives would be dispensed with, consequently in behalf of their fellow operatives who might be thrown out of employment, they decline to adopt the new system. The result may be, that the mills have to close down, and instead of half the weavers being employed, *none* of them will find employment.

This is a time when rigid economy all along the line is necessary, and while it is greatly to be regretted that any set of men are to be thrown out of work, a manufacturer who does not operate his mill so as to turn out goods at the least possible expense, in order to gain a market in these hard times, will soon be in a position where he cannot operate his mill at all. The operatives should realize the situation, and in a case like this, where no unjust demand is made, that is, beyond their ability to comply, the sensible ones must reflect that however generous hearted their motives may be, their principle is faulty, and cannot succeed in the long run.

The Tariff up to Date.

The tariff bill has been advanced one step, having been reported by the Democratic majority of the Finance Committee of the Senate to the whole committee, and the changes decided upon are made known to the public.

The schedules have been patched and tinkered in an endeavor to harmonize the Democratic majority of the Senate.

Sugar, coal and iron are put back on the dutiable list to please the Southern senators. Ten per cent. has been tacked on to collars and cuffs to make Senator Murphy happy, and various other changes attest the compromise nature of the changes.

The cotton schedule remains unchanged. This is a source of congratulation, for the suggested changes to ad valorem duties throughout, and those too on a lower basis, would have been a serious blow to this great industry.

The thanks of the whole cotton manufacturing trade are due to the few manufacturers who have labored so earnestly to protect this industry from further assult.

No mention is made of cotton machinery in the list of changes, so that item remains as originally fixed by the House of Representatives, and will probably not be further molested. Gen. Draper has earned the thanks of his constituents and thousands of workmen and their dependent families for his successful efforts in this direction.

Raw wool is left on the free list, exactly as in the Wilson Bill, the provision to go into effect Aug. 2, 1894.

In manufactures of wool the valuations as given in the Wilson Bill are stricken out, and the schedule now reads as follows:

Wool of the sheep, hair of the camel, goat, alpaca and other like animals, in the form of slubbing waste, roving waste, ring waste, mungo, shoddies, garnetted or carded waste, carbonized noils or other waste product, any of which is composed wholly or in part of wool, the hair of the camel, goat, alpaca and other like animals, which has been improved or advanced beyond its original condition as waste by the use of machinery or the application of labor, or both, and carbonized wool, shall be subject to a duty of 15 per centum ad valorem.

On wool of the sheep, hair of the camel, goat, alpaca or other like animals, in the form of roving, roping or tops, 25 per centum ad valorem.

In woolen and worsted yarns, 30 per centum ad valorem.

On woolen or worsted cloths, shawls, knit fabrics, manufactures of every description made wholly or in part of wool, worsted, the hair of the camel, goat, alpaca or other animals, and any of the above having India rubber as a component material specially provided for in this act, 35 per centum ad valorem (instead of 40, as in the Wilson Bill).

On blankets, hats of wool and flannels, 25 per centum ad valorem; valued at more than 35 cents per pound, 30 per centum ad valorem.

On women's and children's dress goods, composed wholly or in part of wool, not specially provided for in this act, 35 per centum ad valorem (instead of 40).

On clothing ready made, and articles of wearing apparel of every description and imitations of fur, composed wholly or in part of wool, etc., 40 per centum ad valorem (instead of 45).

On webbings, gorings, suspenders, braces, beltings, bindings, braids, etc., 35 per centum ad valorem (instead of 40).

Carpets remain unchanged.

The reductions in the duties for manufactures of wool will take effect Dec. 2, 1894, as previously provided

In the silk schedule, carded silk is changed from 25 cents per pound to 20 per cent. ad valorem. Thrown and spun silk from 20 to 25 per cent. ad valorem. Silk laces are reduced from 50 to 45 per cent.

We will not now criticise the changes in the woolen schedule at length. In brief, it is simply a change from bad to *worse*. Perhaps no further comment is necessary.

The bill has now to be discussed by the whole Finance Committee, then reported to the Senate and discussed at length and voted upon. If passed, it will then be sent back to the House for confirmation of the Senate's changes. If the House does not accept these changes, in all probability a joint conference committee composed of members from both branches of Congress, will then take the bill in hand and fix it up in some shape that will be acceptable to both Houses. Then it must be passed again by the Senate and the House, and receive the President's signature before it becomes a law. It will thus be seen that there is a long parlimentary road to travel yet.

Style Suggestions for Woolen Manufacturers.

Although it is a well known fact that but fifty per cent. of the usual business will be done, some mills have managed to sell their goods entirely up, and this has only been done where prices have been put down to rock bottom. Some manufacturers have put their lines so low that they do not represent a cent of profit, but they have done so to run their mills, and thus retain their organization, for as soon as a mill shuts down the help becomes scattered, and it takes a long while to get it in running trim again, consequently it is better to sell goods at cost and run.

The Washington Mills Co., has on the market at $2.75 and $3.00 probably one of the finest lines of worsteds ever shown at this price, and they come in very close competetion with the higher priced lines. They also have a black and blue worsted cheviot which sells at $1.00. This line has had a very ready sale, but it does not show the value that a line made by Thos. Dolan, of Philadelphia does. Dolan's line sold for $1.25 less 5% last year, and this year it was opened at $1.10 but has since been reduced to $1.00, at which price it is one of the biggest hits of the season.

A large number of clothing houses realizing the coming demand for a cheaper coat than can be gotten in a kersey, have bought beavers, and in this line there is quite a movement.

The most popular line has been the Readfield's, shown by Banendahl, which was opened for $1.05, but are now $1.00. The Russell Mfg. Co., in 1893, had a beaver in black only, for $1.05; this year they are showing it in black and blue, at 90 cts., and it is a creditable piece of goods for the money.

Converse, Stanton & Cullen have shown a beaver in black and blue at 80 cts., made by Dexter Woolen Co., of Maine. This fabric was bought up like hot cakes, but there are doubts expressed whether the mill can deliver such good goods for the money except at a loss.

The Vassalboro Woolen Mills have an "all wool" frieze which weighs 32 oz. which they are selling at $1.10. It is a good fabric and the price is exceedingly cheap. They also have a line of cheviots, prices ranging from $1.00 to $1.75.

The Kiamensis, which had a line of cheviots last year at $1.15, are now at 90 cts., and are obtaining a ready sale at this price.

Fine worsteds are practically dead, and the Globe Woolen Co. are selling their stock goods, which they sold last year 3-4, $1.75 per yard, at $1.25. The Fitchburg Worsted Co. has brought out an "all wool" kersey which is selling at $1.25; it is one of the best fabrics on the market for the money. Of course, for manufacturers who are not getting the business, this is an extremely delicate season to experiment on samples, and the only thing to do if orders are to be expected, is to put the price on samples already made, so low that they have to sell, and make them, even if at cost.

In the line of getting up new styles, it would be well to secure samples of these popular makes on the market, and then get up something just as good to sell for the same or less money.

Hon. Rufus S. Frost.

The sudden death of the Hon. Rufus S. Frost, in Chicago, on March 6, was a great shock to a wide circle of social and business acquaintances.

Mr. Frost was a very conspicuous figure in the woolen manufacturing trade, being at the time of his death president of the National Association of Wool Manufacturers, while for years the firm of which he was senior partner, and to which he gave his name, has represented many of the leading accounts in the market.

The circumstances of his death were particularly sad, as he had left his home in February on a short business trip to Mexico and California, for the benefit of his health, but being suddenly stricken with serious illness in Mexico, was returning East, when his death occurred in a special car in Chicago, and only his wife and physicians were with him.

Mr. Frost was 68 years old. He was born in Marlboro, N. H., and when a young lad came to Boston to live. After a common school education, he entered the wholesale dry goods house of J. H. & J. Osgood, and proved so useful to the firm that when but twenty-one years of age he was admitted to partnership, and the business was reorganized under the name of Osgood & Frost. Later he was a member of the firm of Gardner, Colby & Co., but in 1855 retired, and entered a new firm, who succeeded the old firm of Daniel Kimball & Co. Daniel Kimball, Jr. retiring in 1866, Mr. Frost became senior partner in the firm of Rufus S. Frost & Co.

He was largely interested in many woolen mills in New Hampshire and Massachusetts. He was president of the Haile & Frost Mfg. Co., at Hinsdale, and president of the North National Bank of Boston, of which he was a director for over 30 years. He was seven years president of the National Association of Wool Manufacturers, and two years president of the Boston Board of Trade.

In political life Mr. Frost, while not an active politican, had served the Republican party in Congress, and had been very prominent in benevolent work and in connection with public institutions. He was an ardent advocate of temperance reform, and was one of the leaders in the Law and Order League in this section.

The Fall River Question.

With the stock of print cloths in Fall River piling up, the question of what is the best course to pursue is engrossing the attention of both manufacturers and operatives, and as usual when this question comes up for discussion, each side takes a different view. The manufacturer wishes to curtail wages, and of late the unions have offered in substitute for such a course the attention of a partial shut down, so as to curtail production, rather than reduce wages.

The same issue is likely to be made again in the course of a few weeks that has occurred so many times previously, but we believe that in view of the widespread distress that prevails among the manufacturing communities, a satisfactory settlement will be made before matters are strained to the point of a strike.

The Standard Dictionary.

The ordinary mortal approaches a dictionary with a feeling of respect. He recognizes that between its covers are contained the treasures of knowledge of the wise men of the age, gathered together with infinite care.

When one fully appreciates all the vast work and enormous detail and expense involved in the production of such a great work as the Standard Dictionary, the first volume of which is just published, one realizes that the publication of such a work marks a distinct era in the evolution of our language, and is, to use a commercial comparison, like striking a "balance to date," back of which we need not refer, except from motives of curiosity. The ablest writers and thinkers have set the seal of approval on this great work from their standpoint, and we join in a humble amen to the general chorus of praise.

We have given special study to the treatment of textile and technical terms and phrases, and have been surprised at the thoroughness with which special technical terms have been enumerated and accurately defined. This feature is quite unique in dictionary making, and as far as our observation goes, in comparison with the Century and International, the Standard leads in this respect. Technical men have been accustomed to look for strictly trade and technical definitions to technical dictionaries, but we believe the new Standard will in almost every instance give a satisfactory answer to the meaning of any trade term. We have made scores of tests, and with satisfactory results.

Two hundred and forty-seven office editors and specialists were engaged in its production. It is nearly four years since the work was begun. The first volume is the one now under review (there are to be two volumes (besides an edition of the two volumes in one), and it has cost the publishers so far about $500,000., and it is believed that the mighty labor will cost, by the time a single complete copy is ready to be sold, not far from one million dollars. The comparison of the number of words and terms in the other dictionaries and the Standard is as follows: Johnson, 45,000; Stormouth, 50,000; Worcester, 105,000; Webster (International) 125,000; Century, 225,000; Standard, nearly 300,000. Handicraft terms are gathered with great completeness, under the editorial direction of a competent specialist, and grouped under the different trades, besides the more important of them being given vocabulary places.

The complete work will have about 5000 illustrations made expressly for the work, and over 400 of these are from woodcuts, and some will be full page groups in colors, lithographic work by the Prangs.

It is useless to try to enumerate its features. It is a complete dictionary, in a word, it is "*The Standard*," and, as one of the most eminent authorities says of it, "it will remain the standard for a century to come".

Sold only by subscsiption. Two volume edition, half Russia, per vol. $7.50, set, $15.; full Russia, vol. $8.50, set, $17. Full Morocco, vol. $11., set, $22. The full bound include Denison's Patent Reference Index. Single volume edition, half Russia, $12., including Denison's Patent Reference Index; Russia, $14.; Morocco, $18. Funk & Wagnall's Co., 18-20 Astor Place, New York City, London and Toronto.

The Cotton Market.

BOSTON, March 9, 1894.

The cotton market has been ruling lower and more steady in tone for the past month. European spinners have been taking steadily so that now they are ahead of last year in their takings about 900,000 bales.

English mills are 600,000 bales ahead of their takings at this time last year. In the case of the English takings, however, the increased figures represent for the greater part, cotton in Liverpool; the mills, from all accounts, are not so much ahead in their stocks as compared with last year.

Liverpool and the continent has been induced to buy, probably on account of the low price of cotton, for at New York quotations for middling upland at 7 5-8 cents, which has been about the average for a month, Liverpool could not but come into the market more freely as this is at least 1 1-2 cents lower than last year in February.

American mills, on the other hand, have certainly not been induced to come into the market for the same cause, as their takings still continue to be extremely small and on that "hand to mouth" basis we have been hearing so much of since before last August. It is surprising what small orders some of the largest corporations are content to place with brokers.

American mills are believed to be stocked ahead only from three to four months.

Cotton brokers complain of poor and discouraging business, and it is our opinion that they will not see a change in the state of the market for some months to come. In other words, we must wait until some tariff measure has been sent to the President for his signature before any improvement can take place in trade.

In the mean while, however, the market grows more bare of goods, making it positively certain that the time is not far off when we may see a boom in the cotton trade. Who will reap the benefits of this boom on our line of goods, domestic or foreign manufacturers, is the question in the minds of agents of fine goods mills. As this has come to be a question, business has been noticeably poorer in the mills running on finer numbers on this side of the water; while English mills making fine goods are prepared to take a few risks in view of an immediately better demand from American importers.

Market is steady, ruling lower: Middling white upland can be landed north at about 7 3-4 cents.

EGYPTIAN COTTON.

Prices for Egyptian cotton remain practically unchained from the quotations of a month ago.

Continental and English spinners are taking freely but not liberally, and there is practically no trade with American mills. On Egyptians the spinners of fine numbers and knitting yarns only are concerned, and of course are threatened by the measure now in Congress.

Quoted: Fair to good 10 1-2 to 11 1-4; Good to fine 11 5-8 to 12 3 4.

PERUVIAN COTTON.

The market on rough and all other grades of Peruvian cotton has been slightly lower in tone and there has been a very limited demand from English and Continental spinners. This grade of cotton is scarce.

Quoted: Low, 10 to 11 1-2. High 11 1-2 to 13 1-8.

New Machinery and Processes Coming on the Market.

Items for this department are inserted without regard for advertising patronage or money consideration. We want them as news, and any one sending such particulars will confer a favor on the editors. The statements made are claims, and must not be understood as officially endorsed by the editors.

Combined Napping Machine and Gig. In our woolen department will be found full illustration and description of this very important new machine, brought out by the Parks & Woolson Machine Co., Springfield, Vt. This combined machine not only accomplishes the purpose of two separate machines, but we understand that the quality of work produced is of the highest character, and we are very glad indeed to place the first illustration of this radical improvement before the trade.

Steam Generator. Charles W. Foster, 31 Crown St., New Haven, Ct., is about placing on the market his patent serpentine steam generator, for marine and stationary purposes. This boiler is of the water tube variety, and we hope to have further information upon it in a later issue.

Napper for Circular Rib Knitting Machines. W. Stafford & Co., Little Falls, N. Y. are bringing out the Pennington napper for circular rib machines. This is easily applied to any circular rib machine now in use, and is said to accomplish the work in an effective manner, besides being a simple and durable machine.

Steam Finishing Machine. The Parks & Woolson Machine Co., Springfield, Vt., have greatly improved their steam finishing machine, with copper cylinders by adding to its brushing capacity and by new arrangements of the stretch rolls drum or rolls for holding the covering.

List of Textile Patents for February 1894.

Specifications and drawings furnished for fifteen cents each. Address "Patents" Box 222, Brooklyn, N. Y.

Bobbin and Spindle. 515.085. T. Wrigley, Todmorden, England.

Brown Dye. 515,381. M. Ulrich, J. Banomann and M. Herzberg, Elberfield, Germany.

Carding Engines. Machine for operating on conjoined staples for. 515.315. W. Greaves and J. Wardle, Oldham, England.

Chenille Fabric. Woven. 514.809. S. Biwnis, Philadelphia, Pa.

Cordage Machine. Adjustable take up for. 514.615. C. N. Brown, Boston, Mass., assignor of one-half to Harold W. Windram, Needham, Mass.

Dye. Basic yellow. 515.100. A. Weinberg Frankfort-on-Main, Germany.

Dye. Brown azo. 514.931. M. Hoffman, and C. Krohn, Feehenhein, Germany.

Dye. Disazo dark green. 514.599. M. Hoffman and C. F. Daimler, Feehenhein, Germany.

Dye. Gray. 515.339. A. Israel and K. Pathe, Elberfield, Germany.

PATENTS CROSBY & GREGORY, 34 SCHOOL STREET.

Telephone 3593, Boston. **Office Established 1854.** Cable address Aniline.

George W. Gregory, in November, 1874, resigned his position as Principal Examiner U. S. Patent Office to enter the firm.

Patents secured in the United States and all other countries, Reissues obtained. Interferences conducted. Suits brought and defended for infringement, and searches made as to the validity of patents. Prepared to give special and expert attention to cases involving knowledge of cotton, wool, leather and metal working machinery, including boots and shoes and electrical, chemical and metallurgical inventions and steam engineering. Correspondence solicited. No charge for preliminary advice. Personal consultation best when possible.

HOPEDALE, Mass., January 2d, 1893.

Mr. George W. Gregory, of Crosby and Gregory, has taken out for us since January, 1875, more than two hundred patents. GEO. DRAPER & SONS.

PATENTS

Joseph A. Miller & Co.,
CONSULTING ENGINEERS.
EXPERTS IN THE
TEXTILE, MECHANICAL AND CHEMICAL ARTS.

A thorough practical and scientific knowledge of the useful arts, and extensive experience, enables us to be of great assistance to manufacturers and inventors in perfecting useful improvements.

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MAKE YOURSELF A MECHANICAL ENGINEER OR DRAUGHTSMAN;
or qualify to take charge of, or to superintend the manufacture of Machinery, by devoting your idle hours to Home Study, by the method of THE CORRESPONDENCE SCHOOL OF MECHANICS, Scranton, Pa.
To begin, Students need only know how to read and write.
MODERATE CHARGES. SEND FOR FREE CIRCULAR.

Dyeing Apparatus. 514 743. S. M. Weldon, Amsterdam, N. Y., assignor to Klauder-Weldon Dyeing Machine Co. same place.

Embroidering Machine. 514.138. R. Spengler, N. Y., assignor to John Nalay & S. S. Fleischer, same place.

Jacquard Hooks. Machine for bending. 515.437. R. C. Manville, Waterbury, Conn,

Knit Garments. Garment sleeve and knitting and adapting same for attachment to, 514 909. F. A. Byram, Philadelphia, Pa.

Knitting Machines. Circular rib. 514.895. C. J. Appleton, N. Y., assignor by direct and mesne assignments to Appleton Automatic Machine Co., Long Island City, N. Y.

Knitting Machine Dial Cap. 514.609. F. B. Wildman, Norristown, Pa.

Knitting Machine for Trimmings. 515.085. O. E. Kilmarx, West Hoboken, N. J., assignor to Leschorn and Riegelmann, N. Y.

Loom Let-Off Mechanism. 515.639. H. Wright Qugrow near Keighley, England.

Loom Picker Staff. 515.346. J. Languirand, Woonsocket, R. I.

Loom Picking Mechanism. 515.533. O. Piper, Manchester, N. H.

Loom Selvage Forming Attachment. 514.433. E. Ashworth & A. H. Oldham, Rochdale, England.

Loom Shuttle Spindle. 515.208. H. A. Foster, Lowell, Mass., assignor of one-half to E. W. Thomas.

Loom. Electric shuttle motion for. 514.087 514.088. 514.089 L. W. Lombard, Lynn, Mass., assignor to B. F. Spinney and J. M. Smith, same place.

Loom Shuttle. 514 232. P. L Kobertz, Aix-la-Chapelle, assignor to Basse & Selve, Altena, Germany.

Loom Temple. 514.867. R. P. Pearson, Glen Riddle, Pa., assignor to Dutcher Loom-Temple Co., Hopedale, Mass.

Loom Temple. 515.720. R. Rigby, Fall River, Mass.

Loom Warp Stop Motion. 515.536. O. Smith, Bridgeton, N. J., assignor of one-half to G. O. Draper & Sons, Hopedale, Mass.

Loom Weft Stop Motion. 515.532. O. Piper and J. E. Newton, Manchester, N. H.

Printing Carpet Yarn. Apparatus for 514.282. W. Shaw. Brooklyn, N. Y.

Self Acting Spinning Mule. 514.330 Joseph Moorhouse, Shaw, England.

Shuttle Needle Operating Mechanism. 514.792. W. Tomsa, Prague, Austria, Hungary.

Slubbing and Roving Machines. Means of driving. 514.693. J. Ashton and J. Moorhouse, Shaw, England.

Spindle. 515 733. W. F. Draper, Hopedale, Mass.

Spindle and Bearing. 515.715. J. H. Northrop, Hopedale, Mass.

Spindle and Bearing. 515.732. W. F. Draper, Hopedale, Mass.

Spindle for Conical Cop Tubes. 515 301. W. J. McCausland, Philadelphia, Pa.

Spinning Rings from Sheet Metal. Die for shaping. 515.403. M. D. Marcy. Worcester, Mass,

Spinning Spindle Support. 515.203. T. B. Flanders, Holyoke, Mass.

Spooling Machine. 514.884. J. W. Foster, Westfield, Mass.

Warp Measuring Machine. 515.139. T. Blackburn Dover, N. H., assignor of one-half to J. Lancaster, same place.

Warping or other Machine. Cone holder for. 514.885. J. W. Foster, Westfield, Mass.

—The Tucker & Cook Mfg. Co., of Conway and Springfield, Mass., have adjusted their affairs satisfactorily, and are now prepared to furnish their regular line of white and colored warps, knitting yarn, etc., and can fill orders very promptly. They would be glad to hear from their old customers, and from any new ones who choose to favor them with a trial order.

Running Full Time.

It is in periods of depression that a reputation won for first-class work and product counts in the placing of orders. If a firm has made for itself a reputation of furnishing exactly the goods ordered, in every particular, its customers come to understand that no matter what the price is, they are getting what they bargained for.

It is doubtless due to the fact that such a reputation has been won, that the line of goods manufactured by Fleming & Chapin, 215 Church St., Philadelphia, stand A1 in the trade, and are sought after by the best class of manufacturers, that they have been kept running full capacity during the past six weeks, making crochet lace edging, and supplying braids, both silk and cotton, for ribbed underwear. They are ready at all times to make special patterns to suit customers' tastes, and furnish novelty in design. They are now ready to supply worsted trimming for fall underwear. They carry a very large line of tapes and braids in silk and cotton, for binding, tying, lacing and braiding, besides threads of all grades for manufacturing purposes, knitting and weaving yarns, lisle thread, etc.

YARNS.

The Eastern Yarn Market.

BOSTON, March 10, 1894.

Single and Double Roving White Cop Yarn. It is impossible to report an improvement in business in this branch. The price of yarn is no better, and is barely holding its own. The lining trade is slacking up, on account of the rubber mills shutting down. Spinners are withdrawing samples from the market, and refuse to make yarns at the prices offered. Knitters are beginning to realize that they are getting just what they pay for, that is, they are buying yarn much cheaper from certain mills, and these mills in question are lowering the standard of their yarns, and are mixing waste with cotton, in order to make a price. Some spinners refuse to do this, and their wisdom in this respect will be apparent later, for the trade which is now buying inferior yarn from first class mills cheap will know where to look for yarn that can be depended upon.

Colored Cop Yarn. We note some demand for Jaeger yarns for ribbed underwear, and also some mixtures for hosiery. There continues a demand for fine yarn for fleeced lined underwear. We note a tendency to use colors in fine hosiery, to a certain extent, also there will be a good demand for Jaeger for a heavy ribbed underwear about 1/8s. The prices of carded Egyptian yarns are getting lower and lower. It seems as though the bursting point must be reached when yarns of this kind are selling for 17 1/2 for 11s on cones, and 19 1/2 for 20s cones.

NATIONAL AND PROVIDENCE WORSTED MILLS
CHAS. FLETCHER, President and Treasurer.
MANUFACTURERS OF WORSTED, MOHAIR AND GENAPPED YARNS, SPUN ON THE
ENGLISH SYSTEM.

FRENCH SYSTEM.
Worsted Yarns in White, Mixed and Fancy Colors, on Bobbins, Dresser Spools and Skeins.
VALLEY STREET, PROVIDENCE, R. I.

ALLEGHENY WORSTED MILLS,
Woistenholme, Harrigan, & Clarke, Manfrs. of

Worsted YARNS,
ALL NUMBERS SINGLE AND TWO-PLY,
Sell Direct,
on Cop or in Skein, for Weaving and Knitting Purposes, in White, Natural & Fancy Mixes.
Office and Mills: Alleghney and Trenton Avenues, Phila., Pa.

CRANSTON WORSTED MILLS
CHARLES B. ROCKWELL, Treasurer, . . Manufacturers of
Mohair and Worsted Yarns, Rovings, Fancy Yarns, Worsted and Mohair Tops, also Commission Combing.
DYERS OF YARNS AND SLUBBING FOR THE TRADE.
BRISTOL, R. I.

VALLEY WORSTED MILLS,
PROVIDENCE, R. I.
Spinners of Worsted Yarns.
For Coatings, Dress Goods, Jersey, and Knitting Purposes.
Dyed to Order in all Colors.

CHAUTAUQUA WORSTED MILLS
Medium and Fine Grade Fancy, Weaving and Knitting Yarns.
GOODWILL & ASHWORTH, Jamestown, N. Y.

WILSON H. BROWN & BRO.,
MANUFACTURERS OF
FANCY WOOLEN and MERINO Knitting YARNS & Weaving.
GERMANTOWN, PA.
Salesroom, - 240 Chestnut St., Philadelphia.

CHARLES B. ROBBINS,
Imported and Domestic
YARNS.
Mohair, Worsted and Fancy Yarns.
Single Combed Sea Island Cotton Yarn on Cops for the woolen trade a specialty.
216 Church St., Room 13. New York.

GUERIN SPINNING CO.
JOS. GUERIN, Agent
Custom Spinning of Woolen and Merino Yarns of all descriptions (specially in fine numbers) spun according to the Belgian system.
92 South Main St., - Woonsocket, R. I.

ABEGG & RUSCH,
WORSTED YARNS
Dry Spun. Nos. 36s to 100s.
COTTON YARNS
Nos. 12s to 120s.
92 GRAND ST., NEW YORK.

BELGIAN SYSTEM.
RIVER SPINNING CO.,
WOONSOCKET, R. I.
Woolen, Merino and Cotton Yarns. Fine Yarns a Specialty, for Coatings, Suitings, Dress Goods and Flannels, in White, Solid Colors and Mixtures.
JOHNSTON & FARIE, 132 South 3d St., Philadelphia.

HENRY C. FOX,
Commission Merchant.
Dealer in odd and end lots of
COTTON, WOOLEN AND WORSTED YARNS,
No. 45 Strawberry St., Philadelphia.

CHAS. J. WEBB & CO.,
Foreign and Domestic
WOOL, HAIR and NOILS,
142, 144 & 152 to 156 N. Front St.,
PHILADELPHIA PA.

WEAVING and HOSIERY YARNS.
We Buy for Cash
WARPS, COPS, TWIST and SOFT SKEINS, Single, Double, 3-ply, 4-ply, etc.
COLORED YARNS for HOSIERY
on Cones, a Specialty.
Correspondence Solicited.
Winterbottom, Hyde & Co., 234 and 236 Chestnut Street, PHILADELPHIA, PA.

YARNS
SOLIS - - BOSTON.
179 Devonshire Street.
ANDREW J. SOLIS, Jr. & CO.

SEAMING THREAD FOR Hosiery Manufacturers.
Easthampton Spinning Co.,
SPINNERS OF FINE YARNS
from Egyptian and Peeler Cottons, double carded, or Combed, in Skeins, Chains, Cops and Cones, with full line of Hosiery Yarns.
JOHN CUMNOCK, Treas. and Selling Agent, - EASTHAMPTON, MASS.

Sidney Thompson
7 Hopwood Ave., Manchester, Eng.
Pilcher Gate, - Nottingham, Eng.
Spun Silk, Schappe } YARNS { Cotton, Mohair
NEW YORK OFFICE, 66 Grand St. | H. DE VEER, - - Manager.

Combed Egyptian and Allen Seed Fine yarns are doing better than any other class of yarn to-day. We note considerable sales for 2/36s, 2/40s, 2/42s, Allen Seed and Egyptian for underwear, ribbed goods, also some good sales for 1/20s, 1/27s, 1/29s, 1/32s, Combed Allen Seed and Egyptian.

The manufacturers of balbriggan underwear are doing better than any other branch of industry. Spinners are not running full time as yet, but they have a healthy trade, and are making sales. Knitters are buying only as they receive orders. We expect to see a good business, and the fine yarn mills running full later. We do not believe the spinners have much to fear from foreign spinners of fine cotton yarn, up to 1/50s, at any rate, that is, if we take the quotations of a French spinner in Lisle, France, as a criterion. The prices of the French yarn from 1/40s, to 1/50s, plus the Wilson duty, will cost about five cents per pound more than our own yarns, and they are not made as well. Of course on the balbriggan shirts, that is another matter. With a removal of the duty will come the French article for us to compete with.

WOOLEN YARN.

Spinners are doing a very limited business. Some orders for two and three ply yarns are being placed, also some sample orders for hosiery and underwear. Yarns are being ordered, but very few orders are at hand to run on. Later we expect to see some business. There must be, although the values will be comparatively smaller than in other years.

WORSTED YARN.

We note some business in the coarser grades of braid stock on cheviot yarns. On fine worsteds there is very little, if any, business recorded. The weaving mills this season have out very extensive ranges of samples, in many instances six times as many as they ordinarily have, and a prominent manufacturer assured the writer that so far they had not received as many orders as they had gotten out samples. Many of the mills will not start up before April 1st. The dress goods manufacturers are doing the best, but the mills generally speaking, are shut down, although there can be no doubt that they will run soon, as they have secured orders in limited quantities.

We are informed that business in February was not as good as in January. Manufacturers dare not buy yarn for fear of getting stuck, and we believe the same thing appeals to the jobber, and hence the depression, which is directly traceable to the tariff. Spinners are running on low grade stock, and prices are way off. On some yarns there is a difference of over 25 cents per pound over last year. They have got to come down 25 cents more if they are to compete with foreign yarn. Spinners with stocks of yarn or wool on hand will sell at almost any price.

We quote as follows:

DOUBLE ROVING WHITE COP YARN.

11s and 12s	16 cts.
16s	17 cts.
20s	18 cts.
Jaeger and Camels Hair, 10s to 12s	19 cts.

Cones 1 cent extra.
Other colors quoted on application.

Egyptian Combed.

1/10s to 12s	21 to 22 cts.
1/20s	27 to 28 cts.
1/34s	32 cts.
1/40s	36 cts.
1/45s to 1/50s	41 cts.

Cones extra price.

ALLEN SEED COMBED.

1/10s	23 to 24 cts.
1/40s	35 cts.
2/40s	37 to 38 cts.

WOOLEN YARN.

Will quote on inquiry, as there is too great diversity to give satisfactory quotation.

WORSTED YARN.

Fine Australian.

2/24s	.90
2/40s	.95
2/50s	1.00
2/60s	1.15

Australian.

2/24s	.80
2/40s	.90
2/50s	.95
2/60s	1.10

CAPACITY, 50,000 Spindles. ORSWELL MILLS FITCHBURG MASS.

COMBED OR CARDED
COTTON YARNS
In Chains and Skeins, on Balls, Beams, Spools—single or twisted.

Colored Cotton
COP
YARNS
Solid Colors and Mixtures,
Spun from Colored Cotton
For Knitters and Weavers.
FAST BLACK A SPECIALTY.
Camels Hair Mixes,
Jaeger Mixes and Balbriggans.
E. JENCKES MFG. CO.,
Pawtucket R. I.

KERR THREAD CO.
—SPINNERS OF—
Fine Combed Sea Island COP SINGLES
All Numbers, 30s to 150s.
Fall River, Mass.

EDDY & STREET,
YARNS.
Silk and Cotton Braids for Underwear trade. Embroidery and Knitting Silks.
6 So. Water St., PROVIDENCE, R. I.

GRANT YARN CO.,
COMBED AND CARDED COTTON
YARNS AND WARPS
40s and above.
FITCHBURG, MASS.

W. WARREN THREAD WORKS.

Manufacturers of
Cotton Yarns and Polished Threads. Colored Yarns and Threads on Cones a specialty.
Samples sent on application. Correspondence solicited.

JAS. CHADWICK & BRO.
Limited.
Egyptian and Sea Island COTTON YARNS.
COP, SKEIN, WARP, OR CONE. 20'S TO 150'S.
ALSO FULL LINE OF IMPORTED YARNS, 40s TO 200s.
503 Broome St., NEW YORK. Branch Office, 241 Chestnut St., Phila.

O. H. SAMPSON & CO,
YARNS,
BOSTON, 67 Chauncy St.
NEW YORK, 58 & 60 Worth St.
PHILA. 206 Chestnut St.

J. H. LANE & CO.,
Commission Merchants.
COTTON and JUTE YARNS
110 Worth St., NEW YORK.
24 Kingston St., BOSTON.
151-53 Fifth Ave., CHICAGO.

JAMES E. MITCHELL & CO.,
Commission Merchants.
122 & 124 Chestnut St., Philadelphia, Pa.
51 & 53 Summer St., Boston.
Cotton, Woolen & Worsted Yarns.
All numbers on Hand and Made to Order.

ALEX'R KING & CO.
YARNS.
FINE IMPORTED YARNS A SPECIALTY.
54 Leonard St., New York.

SAWYER, MANNING & CO.,
YARNS,
86 & 88 Franklin St., NEW YORK.

TILLINGHAST, STILES & CO.
COTTON YARNS
ALL NUMBERS.
Chain Warps, Skeins, Cops, Cones, Beams, Spools, Colored and Gray Yarns. Hosiery and Combed Yarns.
20 Market Square, Room 53. Providence, R. I.

BUCKINGHAM & PAULSON,
Commission Merchants
YARN and WARPS.
83 Leonard St., New York.
120 Chestnut St., Philadelphia.
211 Jackson St., Chicago

TUCKER & COOK MFG. CO
MANUFACTURERS OF
WHITE AND COLORED COTTON WARPS
Nos. 6s to 30s,
On Beams, Jack Spools or in Chains.
CONWAY, MASS.

WM. MASON MFG. CO.,
SPINNERS OF HOSIERY AND THREAD YARNS
J. H. HAMBLY, Treas. and Selling Agent, PROVIDENCE, R. I.

RICHARD A. BLYTHE,
Fine Nos. a Specialty, 20's to 150's. Carpet Yarns and Warps, 4's to 20's.
Cotton Warps and Yarns,
114 Chestnut St., Philadelphia, Penn.

FLEMING & CHAPIN
YARNS THREADS TAPES BRAIDS
CROCHET LACE EDGING AND CHAIN for Ribbed Underwear.
215 Church St., PHILA.

Littlefield Manufacturing Co.
K. K. HOSIERY YARNS, COPS, CONES & SKEINS.
Threads for Spooling. Single and Double Yarns for Silk, Woolen or Cotton Goods.
PAWTUCKET, R. I.

Combined Capital Stock, $2,000,000.00.
WM. D. HOWLAND, TREAS.

Total Spindles, 140,000.
BYRON F. CARD, AGT.

NEW BEDFORD MFG. CO.,
HOWLAND MILLS CORP'N,
ROTCH SPINNING CORP'N.

Single or Twisted, Combed or Carded.
Hosiery Yarns, Chain Warps, Skeins, Spools or Cops, also on Beams from Nos. 10's to 100's.

J. MULLINEAUX, JR., Phila. Agt., 215 Chestnut St.

HIGH GRADE COTTON YARNS.

Byron F. Card, Selling Agent,
NEW BEDFORD, MASS.

GLOBE YARN MILLS — FALL RIVER MASS. — 1881

Capital $1,200.000. 100,000 SPINDLES.
Weekly product 120,000 lbs. 14's to 160's.

COTTON YARNS
Superior Qualities
SPECIALLY ADAPTED FOR
Silk, Plush, Upholstery and Hosiery MANUFACTURERS.
American Peelers. ✣ Sea Island. ✣ Egyptian Cottons.
Superior Qualities Combed & Carded — Furnished in singles, 2, 3, 4 & 6 ply chain warps, skeins, beams, spools, tubes, cones & Lisle Thread yarns.
COPS FOR WEAVING & TWISTING. COPS FOR HOSIERY.
Arnold B. Sanford, - - Treasurer.

Arnold B. Sanford, *Pres.* Arthur H. Mason, *Treas*
Capital Stock, $400,000.

Sanford Spinning Co.
Fall River, Mass.
30,000 Spindles. Weekly Product, 50,000 pounds 14s to 40s.
Novelty Cotton Yarns
From American Peelers and Egyptian Cottons.
OUR SPECIALTY: Superior qualities of Hosiery Yarns, Natural Shades of Cottons, and in Colors, Jaegers, Mixes and Bleached, Hosiery Cops on Long Tubes, Skeins, Tubes, Cones and Lisle Thread Yarns. Furnished in Carded and Combed Qualities in Singles, 2, 3 and 4 plies.

Hosiery AND Weaving Yarn ALBERT IVINS GROLL, BOSTON.

GREENE & DANIELS MFG. CO.,
Combed and Carded
Yarns, Threads, Twines and Chain Warps,
Furnished in any manner desired by the trade.
PAWTUCKET, R. I.

HADLEY SPOOL COTTON AND FINE YARNS COMPANY
COTTON SPINNERS.
MILLS AT HOLYOKE, MASS.

SPINNERS OF
FINE COTTON YARNS
30s TO 100s.
Gray, Bleached, or Colored. On cop, in skein on spools, cones or tubes.
Fine Cotton Warps, single and two-ply, in chain, etc.
95 Milk Street, BOSTON.

Wilkes-Barre Lace Mfg Co.
SPINNERS OF
COTTON YARNS.
Double-Carded, Frame-Spun,
Double-Roving, In Skeins.
30s TO 40s, TWO-PLY ONLY.
Wilkes-Barre, Pa.

Twisting Yarns. WHITTIER COTTON MILL, LOWELL, MASS.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. E. J. CARRIGAN, Sec.
Established 1860.—Incorporated 1893.
THE S. BLAISDELL JR., CO.,
Egyptian **COTTON** Peruvian
American Long Staple a Specialty. and all American Southern points.
Shipments direct to mill from Egypt, Peru
CHICOPEE, MASS.

EGYPTIAN COTTON
HERMAN CAPELLE,
Rothschild Building, Cor. Leonard St. & W. Broadway
NEW YORK.
H. BINDERNAGEL, Alexandria, Egypt.

ROBERT D. MASON, President. FREDERIC R. MASON, Treas. and Sec'y.
THE ROBERT D. MASON CO.,
Established 1803. Incorporated 1892.
BLEACHERS AND DYERS
of Spool Threads, Knitting Cotton, Cords, Braids, Tapes, Stockinet and Jersey Cloth, and all kinds of single and two-ply Yarns, Indigo Blues, Aniline Blacks, and Fast Black for Milling Purposes. Also Woolen and Worsted Yarns and Braids of every description.
WORKS AT SOUTH WOODLAWN, - - PAWTUCKET, R. I.

Better than half-blood Australian.

2/30s	.75
2/40s	.85
2/50s	.95

Half-blood Domestic.

2/40s	.70

DOMESTIC.

1/4 Blood,	
2/28s, 24s, 18s	60 cts.
2/32s	65 cts.
3/8 Blood,	
2/32s	60 cts.
2/28s, 24s	60 cts.
1/2 Blood,	
2/22s, 28s	65 cts.

The Philadelphia Yarn Market.

PHILADELPHIA, Feb. 10, 1894.

While we can report considerable improvement in trade, no one is placing orders, except for immediate needs. Prices are so very low that manufacturers positively cannot afford to take much risk and buy sparingly, and most of the prices here quoted are positively below cost and very unsatisfactory to spinners.

WARPS.

20/1	13 cts.
22/1	13½ "
26/1	14 "
20/2	14 "
12/2	13 "
30/2	19½ to 20 cts.

SKEIN.

26/1	13½ cts.
20/1	13 "
19/1	13½ to 14 cts.
4s to 8s soft	12 to 12½ "
10s to 12s hard	12
10s to 12s soft	12¼ cts.
14s hard	12 to 12½ cts.
14s soft	13½ to 14 "
14/2 hard	12½ to 13 "
20/2	14 cts.

SOUTHERN CONES.

6s to 8s white	13 cts.
10s	14 "
12s	15 cts.

SOUTHERN COPS.

6s to 8s white	13 cts.
10s to 12s	13 to 13½ cts.
16s	15 cts.

MIXED CONES (COLORS).

6s to 8s	16 cts.
10 to 12s	17 to 17½ cts.
15s	17½ to 18 "

SKEINS.

8/3 Carpet Chain	12 cts.
60-yd DR filling	8 to 8½ cts.
8/3 slack	12½ to 13 "
9/4	13 cts.
10s double reel	13 to 13½ "
16/3 slack	14½ to 15 cts

EASTERN COPS.

26s shuttle	15 to 15½ cts.
40s "	18½ to 19 "
6s to 8s Hosiery	13 to 13½ "
10s to 12s "	16 cts.
14s to 16s "	16½ to 17 "
20s "	18½
24s	19½ cts.
30s	22 to 22½ cts.

Eastern Cones 1 2 to 1 1-2 ct. extra.
Egyptian Cotton 2 1 2 to 3 ct. higher.

CONE, TAPER, MAILING, PARALLEL, **TUBES.**
DOUGLAS BROS., Fall River, Mass.

Gorham Rogers & Co.,
— IMPORTERS OF —
BURLAPS
20 Federal Street, Boston.

BARRY, THAYER & CO.,
Cotton Commission Merchants,
32 INDIA ST., - BOSTON.
Special attention given to orders from woolen mills for high grades and Peruvians.

C. MOORE & CO.,
MANUFACTURERS OF
TWINES, THREADS AND YARNS.
Jacquard Harness Twines of all kinds on hand and made to order.
12 SOUTH FIFTH STREET
Philadelphia.

ROBERT J. WALKER,
2335 Hamilton St., Phila., Pa.
★Star Finishing Works
All kinds of cotton goods finished in the best manner, including Fine Madras Shirtings, Ginghams, Cheviots, Tickings and Cottonades. Refinishing a specialty.

Cheney Brothers,
SILK MANUFACTURERS.
ALL KINDS OF
Knitting Silks, Ribbons AND Piece Silks
USED FOR TRIMMING KNIT GOODS.
TRAMS, ORGANZINES and SPUN SILKS, in the Hank, or on Spools or Cones for Manufacturers' Use. Silks for Special Purposes Made to Order.
MILLS: South Manchester and Hartford, Conn.
SALESROOMS: 477, 479, and 481 Broome Street, NEW YORK.
79 Chauncey Street, BOSTON.
186 Franklin Street, CHICAGO.

CRISWOLD WORSTED CO., Ltd.
MANUFACTURERS
Spun Silk Yarns, Worsted Yarns,
FOR ALL PURPOSES.
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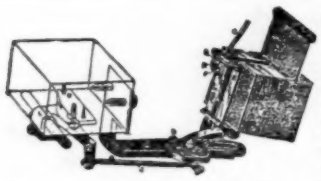

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WOOLEN DEPT.

The Wool Market.

BOSTON, Mar. 10, 1894.

The volume of business for the psat month has been of fair proportions and the amount of sales for some weeks compares very favorably with those for a corresponding period of last year. Orders for a low grade of goods have been taken by manufacturers quite freely, consequently the demand for medium and low wools has been good, both from woolen and worsted manufacturers.

Some large blocks of California wools have been moved to manufacturers of overcoatings. Prices on desirable wools have been sustained; scrub lots however can be bought at almost any figure.

Fine Delaine out of Ohio and Pennsylvania wools is scarce and the demand good. 25 cts. is asked for choice lots. Average wools have sold at 23 to 24 cts. Michigan is well sold up at 22 to 23 cts.

No. 1. *Staple Wools* have been in fair request at 24 to 25 cents. There has been small demand for clothing of this grade.

XX Ohio and Pennsylvania has been moved quite freely at 22 cts. X Ohio is scarce and is quotable at 20 to 21 cts. Michigan of this grade has some movement at 19 to 19 1-2. Some has moved at 18 cts.

Medium Unwashed staple wools have been in excellent request and there has been a large business done in wools grading 1-4 and below. 20 to 21 cts. is easily obtained for wools of average grades; 22 cts. for something clean from Kentucky section. Braid wools are very scarce and would easily bring as much as a 1-4 grade.

Territory Wools have had fair attention; anything with staple is readily taken and 40 cts. for a fine wool of this character is readily obtained. These are in light supply. Wools of average staple are held on a basis of 38 cts., with 34 to 35 cts. for Fine Medium. Medium stapled wools are well sold up.

California Wools have moved in several large blocks on a basis of 34 cts. for stock of about eight months growth.

Oregon Wool from the valleys, grading 1-4, has been moved at 21 cts.; 17 cts. has been obtained for braid out of this class. No. 1 has been in light request and is quotable on basis of 34 to 35 cts.

Texas Wools of twelve months growth are in light supply and are quotable on same basis as Territories. Of six and eight months there is a fair supply and demand light.

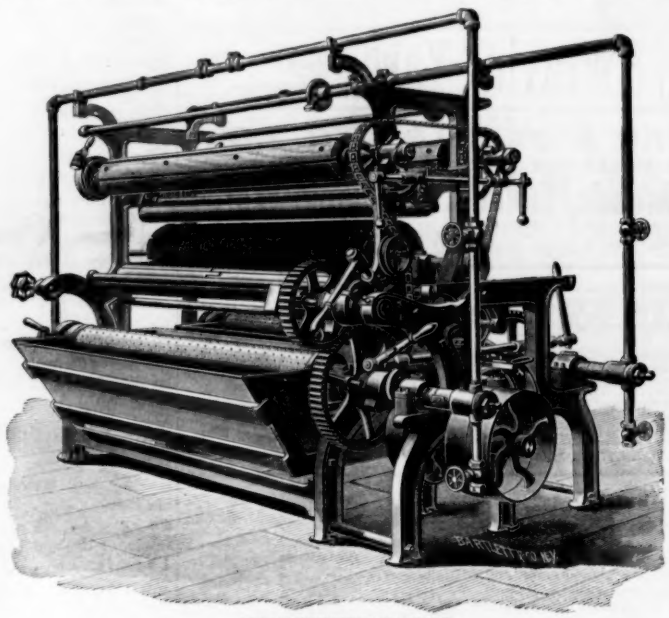
Pulled Wools of all grades are in good request and considerable business has been done. B supers sell readily at 26 to 28 cts. for cheviots. A supers have been moved on basis of 32 to 34 cts. Extras are very scarce and fancy prices are obtained for choice stock. In connection with the demand for Medium fleeces, combing staple out of this class of stock moves quickly on about the same clean basis.

Australian. There has been but little done in Australian wools with domestic manufacturers. Some old wools however have been moved at a low figure to the Canadians. A small business has been done in lambs at ruling prices 69 to 70 cts. for free stock. The London sales opened with little change from closing rates of last series.

Business for the next few months is most liable to be of the hand to mouth order; buying will be done as heretofore simply to cover orders, hence the volume of business depends largely on the caprice or necessities of the clothiers. Some mills however refuse to run, not from lack of orders, but a disposition on the part of the owner to await the Senate's action.

New Steam Finishing Machine.

The illustration represents a steam finishing machine of an entirely new design, possessing many points of excellence, which are claimed to make it superior to any machine of the kind now on the market. It is built very substantially, the frames, gears, pulleys, clutches and all working parts being very heavy; the whole machine weighs 3,000 pounds. The Parks & Woolson Machine Co., of Springfield, Vt., are the builders.



STEAM FINISHING MACHINE.

The perforated steam cylinders are of copper and of length and diameter to suit purchasers. In the regular 6-4 machine the cylinders are 70 inches long and eight inches in diameter. Before each cylinder is one of their stretch-rolls which is a most perfect roll of this nature.

The brush lies in the centre of the machine above the steam cylinders; it is 14 inches in diameter, the lags are of oak, set with stiff Polish bristles, and fastened to five iron heads. This brush is run by a 3 1-2 inch belt, and there are two applications of the cloth to it, which gives the machine great brushing capacity. This brush is reversable, a feature which all acquainted with rotary brushes know is most desirable. The rolls which let the cloth off and on to the brush are adjustable by means of a hand wheel.

The goods may be brushed before steaming, when going from one cylinder o the other, or when winding off on to rolls.

In their regular steamer the mainshaft should run 100 revolutions, which gives the brush 250 revolutions, and runs the cloth 30 yards per minute. This arrangement, it is found, gives the most general satisfaction; but to accommodate those who wish to do MORE BRUSHING and LESS STEAMING, they build the machine with a shaft at the top, and by belting to this shaft and then down on to the brush, they increase the speed of the brush and run the cloth slower; this, of course, greatly increases the brushing and lessens the steaming capacity of the machine. With this arrangement, the main shaft should run 60 revolutions, which gives the brush 280, and runs the cloth 20 yards per minute. By a mere change of pulleys anyone can obtain almost any desired result and operate the machine to meet their immediate wants.

At the top of the machiue are two wood-drums, run by sprocket wheel and chain and operated by clutches, with powerful frictions on the opposite ends. This is an original idea with the Parks & Woolson Machine Co., and it is very popular. They can be used to wind the goods on, to straighten them out before running them on the copper cylinders, or keep a strip of heavy duck about four inches wide run on them, and after the goods are wound on the copper cylinders wind the duck from the wood-drums (keeping on the frictions) around the goods, lapping it by about an inch. There is nothing better than this to hold in the steam.

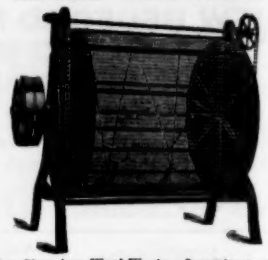
The winding attachment on this Steamer is unsurpassed; it is powerful, quickly adjusted to different widths, and easily operated. They make the winding rolls for this attachment if desired; they are made from rock maple and have iron heads.

The frictions on the end of the copper cylinders and wood drums are practically perfect. They have cork bearings, are adjusted by a thumb-screw on a solid rubber cushion, are thrown off and on by a cam, consequently act quick and strong, and when set for any desired tension, GIVE EXACTLY THE SAME TENSION EVERY TIME.

The pans underneath the copper cylinders are of galvanized iron, they are large and arranged to catch all water. The draft-rolls are covered with brass and every detail of the machine is superior as regards stock and workmanship.

This Steamer, as shown in the cut, is piped complete, ready to attach steam and cold water. There are two valves on one end of the machine; by closing the upper and opening the lower and letting on the steam the water can be blown out of the cylinders. The arrangement of the machine makes it convenient and easy to handle and very rapid in its work.

IMPROVED WASTE DUSTER



For Cleaning Wool Waste. Superior to any now in use. Manufactured by the Stillman Rich Machine Co., Westerly, R. I. Send for circular.

The floor-space required for 6-4 machine is only 5x10 feet. The driving pulleys are 15 inches in diameter, 4 inch face. The machine has a capacity for a roll of goods 24 inches in diameter. This Steam Finishing Machine is an improvement in every way over the old fashioned Steam Gig; as a method of producing a lustre on face finished goods; it is efficient and economical, and we believe will give the most gratifying results on all goods which require a steam finish.

As an evidence of the faith which the builders have in it, they offer these Steamers to responsible parties on 30 days trial, guaranteeing satisfaction, and invite correspondence.

Talks on Loom Fixing.

VI.

Continued from February.

An essential part of the loom is the harness motion. If this part is out of order the whole loom is affected. Perfect goods cannot be made when the head motion is improperly adjusted. Not only that, but the threads will break more than when all is set right. The head motion should be so set that the harness will have opened the threads of the warp to the full extent of the shed at the time when the shuttle is about to pass into the selvages. Often one sees the weaver continually tying up the broken ends of the warp threads in the vicinity of the selvages. This is because the harness are set to open too late. If they do not open in time, the points of the shuttles will contact with the threads at every trip of the shuttles.

It is hard to see this with the eye. An unskilled fixer might gaze at the loom an hour and never once see the point of the shuttle conflict with the threads at the edge of the shed. The eye is not quick enough. Yet the shuttle is doing much damage in such cases. If the eye is slow to detect, the best way to do is stop the loom, swing over the lay and turn it till the loom begins to pick. Keep on pushing till the shuttle is about to enter the shed. If the shed is not wholly open at this time, you must make it open. This can be done by setting the driving gear of the harness motion a tooth ahead.

USE JUDGEMENT, HOWEVER.

Before altering the gear which drives the head motion, however, it is well to make sure that the trouble arises from the lateness of the harness. Perhaps the shuttle is getting toward the shed too soon. Remember the rules given in previous article for setting this part of the loom in which it was shown that the loom should pick when the cranks were straight up, and there will be no difficulty. Also take care to examine the harnesses themselves. Too often the fixer tears the head motion to pieces in a vain endeavor to make the shed open better, when the trouble lies in the way the harnesses are hung. The great general danger here is that the fixer is liable to hang the harnesses too low. If the harnesses go down an inch farther than necessary, it follows that that inch must come off the height in the rise.

Loom builders construct the modern head motion so that it opens sufficient to admit the shuttle with ease. But they do not allow for bungling fixers to cause a loss of an inch or two of important leverage at the time most needed, nor can they be expected to. Hence, before deciding that the poor shed is the result of the lateness of the head motion, it is well to investigate, and see if the harnesses are not hung too low, or that the shuttle is made to leave the box too soon.

"MY WARP KEEPS BREAKING."

Every loom fixes is more or less familiar with the expression, "My warp keeps breaking." In woolen and worsted mills the fixers are particularly familiar with it. Yet who can blame the weaver? Her whole life depends upon the way her warp goes. She is paid by the yard. If the work runs well she can make a dollar a day, perhaps more. If it goes badly, her work is increased as she has more ends to tie, at the same time her income will be reduced to about sixty cents or less per day. Is it any wonder that weavers become discouraged, cross and at times quite disagreeable?

Half the bad warps are made in the spinning, carding, dressing or spooling. Perhaps one-quarter are the result of using poor stock. The other quarter are the result of reckless loom fixing. Anyway, these are the averages as quoted by a man who informs me that he has made a research into the matter. He is a superintendent of a large mill, and he ought to know. If one quarter the bad work is caused by loom fixing, does it not follow that it is time for fixers to brace up? Yet the average loom fixer gets mad if a weaver assails him too frequently with the remark that her warp keeps breaking. A weaver does not go to the fixer for fun. She often puts up with bad work for a long time before complaining. When approached by a weaver, therefore, it seems only justice that the fixer treat her with respect.

He should go to her loom, look over the harnesses, see if they are not hung too low or too high. See if they are not opening too late. See if there is not a splinter on the shuttle which is tearing the threads. See if the shuttle is not being thrown so crooked that it contacts with the bottom or top of the shed. See if one particular harness is not higher or lower than the other. See if the take-up is not putting too much of a strain on the tender warp threads. See to all these things before you condemn the weaver.

A fixer does not like to be called time and time again to the same loom. He likes to say that, that loom has run for a month without fixing. It is good for his reputation to have it said that he does not have to tinker at his looms all day. The man who can sit upon the bench the most time is the best fixer. It means that he sets his looms once and for all, and then all he need do, is to put on an occasional stick or strap, or put in a warp.

This is all right for the real good fixer But when a half way man tries it, the weavers have to suffer. He makes it disagreeable for them when they apply to him. They soon learn to let their looms run as long as possible without attention from him, and the result is that the looms are run down in a few months. Let every man treat his weavers respectfully and a step in advance in the loom fixing trade will have been made.

PROPER ADJUSTMENT OF HARNESS MOTION

To time the harnesses on the Knowles loom proceed as follows: Bring the lay forward till the daggers protect, loosen the two set screws that hold the small spur gear to the shaft, and with the clutch at the lower part of the shaft locked, turn the cylinder gear crank forward till the shuttle boxes rise one-quarter of an inch; then fasten the set screws. Both harness and box motion is thus timed. Should it be necessary to have the harnesses earlier to suit certain kinds of work, loosen set screw in the harness section of the head motion, and which is on the cylinder gear, and turn this section forward and tighten the screws again. To make harnesses later, do the reverse.

Look out that the same change is made in top and bottom cylinders, otherwise there will be a break. Also see that the starting gear engages with the gears of the vibrators at same time. When light work is in progress in the loom, it is best to have the teeth on both box and harness sections in line with each other. For medium work the harness section should be four teeth ahead of the box. For heavy work, the distance should be seven teeth. This will give the harnesses plenty of time to open well before the shuttle has to enter the shed.

The open shed loom is so arranged that it is easy to adjust the harnesses on a level. By throwing out the clutches, the fixer can level the harnesses then glance his eye over the set so as to see if all are even. Often one or more will need raising or lowering. It is well to have all even previous to timing the harness motion at the head.

ADJUSTING THE CLOSE SHED.

There are as many close shed looms in use as open, and so the fixer must be familiar with both kinds. The rule for setting the head motion of the close shed loom (Crompton), is as follows:

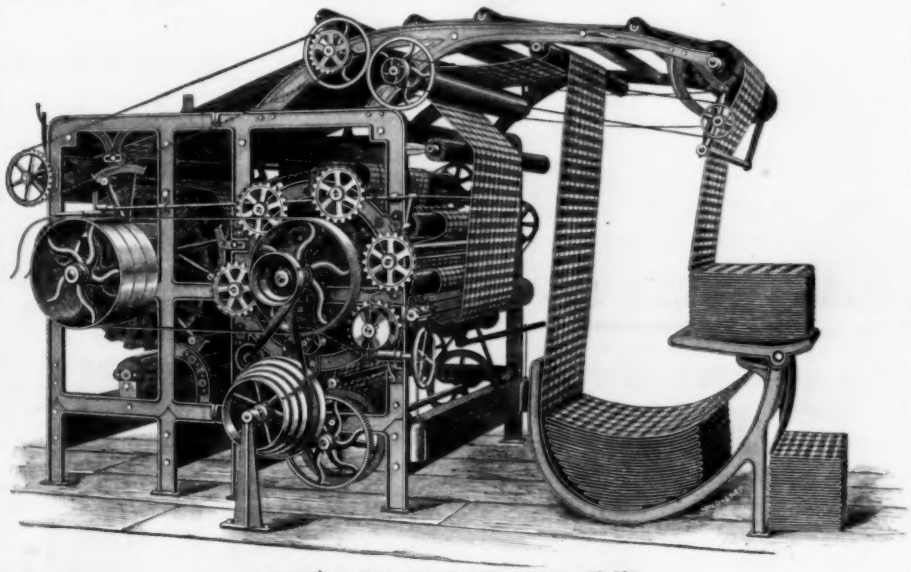
Pull up the lay and push it back five and one-quarter inches from the breast beam. At this point the harnesses should begin to open. Loosen the stud which connects the operating arm with the crank shaft and get the eveners of the head just close enough so as to retain the jacks firmly, and tighten again. At this moment the chain mechanism should engage with the fingers and lift or depress the same.

Let the fixer set the chain so that it will begin its works earlier than this, and in a very brief time the notches of the fingers will be so badly worn that misspicks will be frequent. This is the result of the fingers rubbing on the knife. The knife is hard steel, while the fingers are simply cast iron. Hence the fingers suffer. But this need not occur if the head motion is set as per above rules.

Of course we cannot lay down a set of standard rules to set the head motion by, as different warps and weaves require different adjustments. But the above is the centre around which all other adjustments hinge. Set the head in this way at the start, and vary it a tooth or two earlier or later as conditions require.

Many warps have to be favored. Sometimes too little twist has been put in the yarns and they break excessively. Again too little sizing has been used and again they break. Harnesses motion have to be set to favor work of this kind, even if the loom itself suffers. A warp, no matter how bad it is, must be woven out, and if the fixer cannot set the loom to do it, then the reputation of that fixer takes the consequences. But there is a way. The writer has met with hundreds of bad warps, but has always found a way to weave them. The key to this consists in setting the head motion of the loom according to above standard rules, then varying it sooner or later from this standard to favor the work in hand.

(To be continued.)



BROWN'S PATENT COMBINATION NAPPER ANC GIG.

Brown's Patent Combination Napper and Gig.

The cut represents a combination gigging and napping machine, patented May 2nd, 1893, by Adna Brown, president of Parks & Woolson Machine Co., and illustrated for the first time herewith. In traveling through the country and conferring with a large number of the best superintendents and finishers, Mr. Brown ascertained that the great majority of mills making nice goods use the nappers for breaking up, and then put them on the teazle gigs in order to get the finish required. As a result of his investigations Mr. Brown conceived the idea of the machine here represented.

The front cylinder is a regular French napper i. e, sun and planet system, and the back cylinder is a regular teazle gig cylinder. Goods run through this machine are first applied to the wire cylinder, which raises the nap, and then applied to the teazle cylinder which combs and lays it. Alternating this process gives a deep and even finish, which it is claimed is impossible to attain in any other way. Some have tried to obtain these results by the use of brushes after the wire gig, but this makes the finish shallow.

The combination of the napping and gigging in one machine is claimed to save *more than one half* in time, labor and expense, besides giving the most superior finish. Both cylinders can be operated at once, or either one alone, as desired.

The idea of this machine is entirely new in the woolen world and it has the approval of those who stand high as makers of woolen fabrics. Parks & Woolson Machine Co., have placed these machines on trial side by side with other nappers, and they have been thoroughly tested and the work done on them is claimed to be better than tha done on the competing machines.

This machine is built very substantially, there is no shaking motion, there are no gears to rattle, and the whole machine is almost noiseless while running. The arrangement for carrying the cloth is run by sprocket wheels and chains; the cloth runs with the cylinders.

There are four applications of the cloth to the wire cylinder, and three to the teazle cylinder; these applications are adjustable by means of hand wheels. On the napper cylinder these applications are governed by one hand wheel, as shown in the cut, and there is a dial and needle so that each piece can be given exactly the same amount of napping it desired.

The workers on the napper cylinder, of which there are ten, are driven by four ropes, two on each end, and their speed with respect to the cylinder is regulated by two cone pulleys.

The card clothing with which the ten workers are covered, was selected after a thorough and careful investigation of the subject, and the builders claim this clothing will waste less stock and give better results than any other. *This clothing will not rust*, which is another very important claim.

The rolls which let the cloth off and on to both cylinders are covered with brass to prevent their rusting. The fact that the working parts of this machine are not affected by moisture is a great point in its favor; the writer has seen a napper which had stood a few days after running on wet goods, utterly useless because of the working parts being completely covered with rust.

The back cylinder will carry twenty-one of the improved wood flats. There is a stretch roll in front of each cylinder. The stock and workmanship throughout is of the best, and there are many minor points of excellence which only those who see and operate the machine can fully appreciate.

The machine is divided in the middle and shipped in two parts, and will go through any mill door.

This Combination Napper and Gig will be shipped to all responsible parties on trial, guaranteeing satisfaction.

All inquiries promptly and cheerfully answered by wire, letter or in person, by the builders, Parks & Woolson Mch. Co., Springfield, Vermont.

Improved Business.

Notwithstanding the extreme depression in the textile industries during the last six months of 1893, Messrs. J. O. Draper & Co., Pawtucket, R. I., have largely increased their sales of mill soaps, having among their customers many of the largest and finest mills in the country. The business for Jan. 1894, was largely in excess of Jan. 1893, which at that date was the largest in their history. Their business for February also shows a large increase over the corresponding period of last year.

In and Around Fitchburg.

Specially reported.

The Parkhill mills (three in number) are running on full time and with a full complement of help. There has not been any cut down in wages since last October, when a cut of from 10 to 15 per cent. was made. The Grant Yarn Company are not running very heavy, and consider the cutting down of the yarn schedule as an element of uncertainty.

At B. M. Pitts & Co.'s cotton yarn mills, affairs are a little better. Mr. Pitts has supplied one firm in Boston for thirty years, and is not directly affected by the open market. The mill has been run full time all winter with one-half the usual operatives. Orders gained a little last month, and more help was about to be added when work slacked again. April is confidently expected to bring a revival of normal conditions.

The Beoli Worsted Mill is running on nearly full time, and about the usual number of help are at work. A 2 1-2 per cent. cut down was made last week among the "jack" spinners, and a number of these struck, but their places were immediately filled.

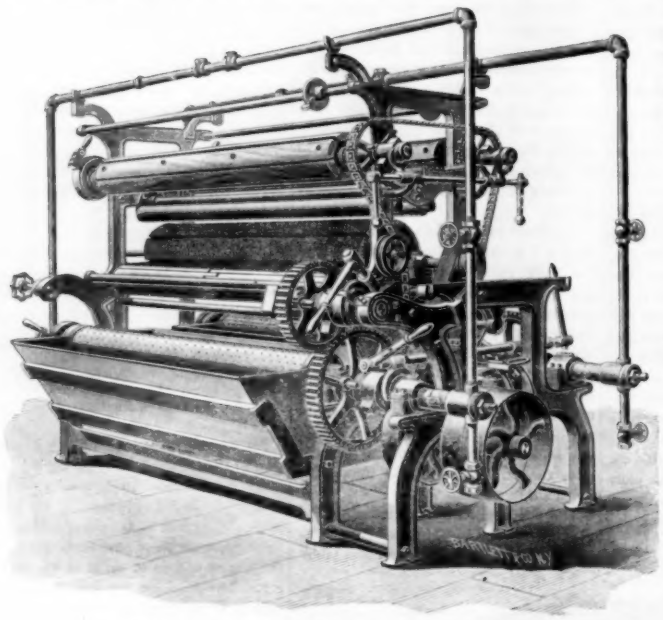
The Orswell Mills are running full time on a reduction of 4 1-2 per cent.

The Fitchburg Worsted Company are not running a loom, and the following remarks were made by Superintendant Coggswell. "We have been shut down now six weeks. Our production when on full time is 75 pieces daily, and since our shutting down we have received orders for 150 pieces. For three months previous to our closing, we ran at a loss, preferring to pile up our goods to a certain extent to keep our help employed, thinking that when the season for heavy weight goods came (about Jan. 1) orders would come in sufficient to keep us busy, but were greatly disappointed. As soon as we get orders to employ us for a month, we shall start up. The sole reason for our closing is lack of orders, and unless some unexpected change takes place there is no hope for resuming."

The handsome new Nockege Mill which was to have been started up some months ago, stands as a monument to the hard times. It is 300 feet long by 75 feet wide, five stories. The machinery was ordered, but when the wave of depression struck, the order was countermanded.

—Timothy Anderson, Blackstone, Mass., has accepted a position in Singleton's Worsted Mill, Franklin, Mass.

PARKS & WOOLSON MACHINE CO.



Steam Finishing Machine.

For full description, see Page 6.

SEND for our Descriptive Catalogue of CLOTH-FINISHING MACHINERY of every description. Sent free upon application.

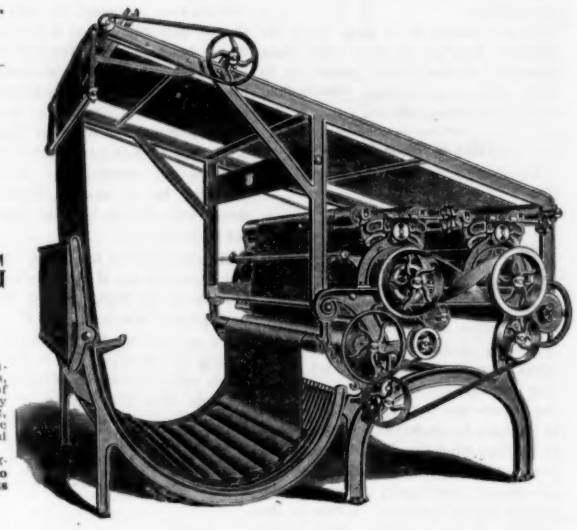
Something New.

BROWN'S

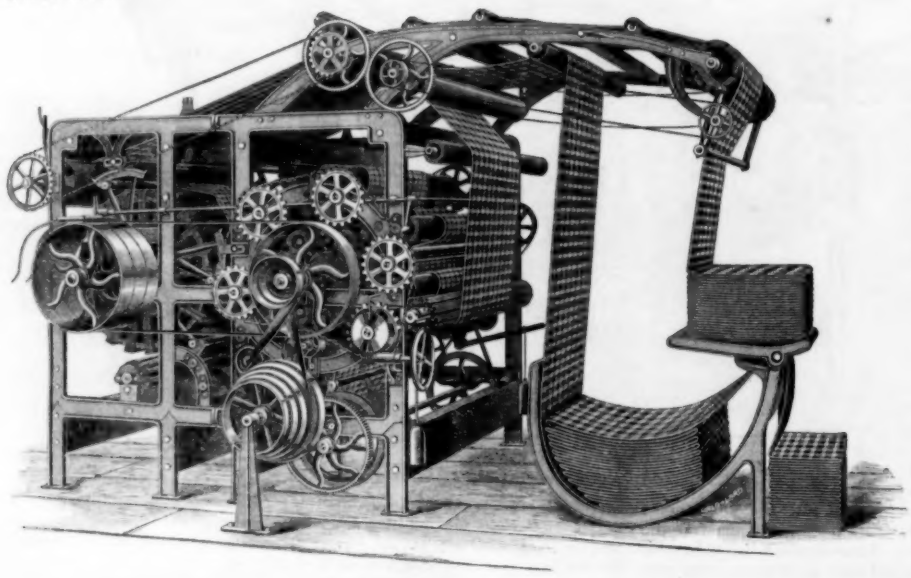
WORSTED POLISHING MACHINE.

The right hand cut represents a new machine for finishing worsted goods, suitings, flannels, and all light fabrics. The effect of this machine is to limber up a stiff or tightly woven piece of goods, and give it a soft, velvety finish. It gives to the face of the goods a lustre with a round, full thread, and is fine for fancy weaves.

This machine takes the place of the English pumiceing machine, and **will do twice the amount of work, and costs less money.**

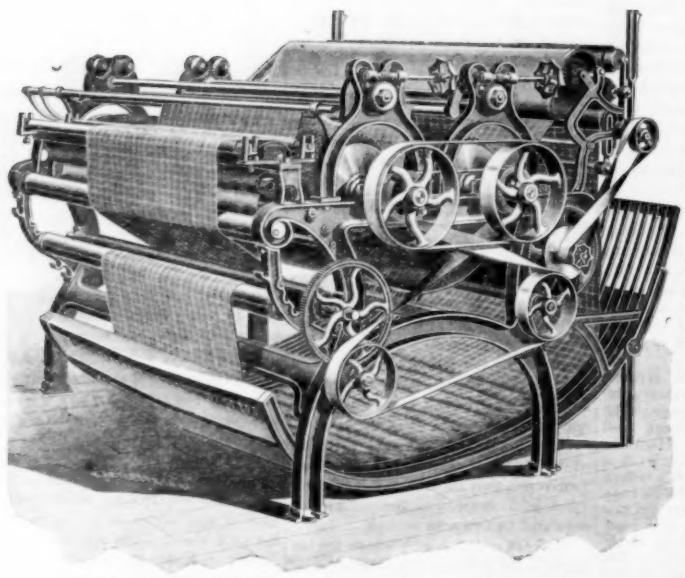


Brown's Worsted Polishing Machine.



Brown's Patent Combination Napping Machine.

For Full Description, see Page 7.



Double-Acting Brushing Machine.

BROWN'S

NEW

DOUBLE-ACTING

Brushing Machine

With One or Two Cylinders.

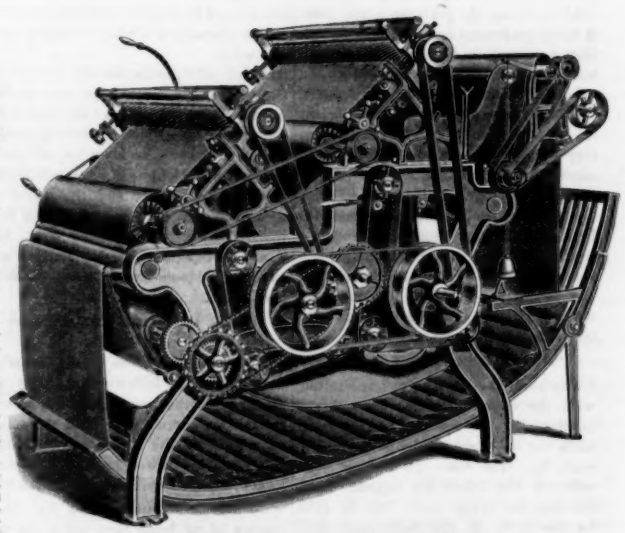
Within the last few months we have added to this machine an entirely new device for controlling the application of the cloth to the cylinders; the cloth touches each cylinder twice, thus doubling its capacity for work; and may be applied to each cylinder as heavily or as lightly as desired.

Though we have greatly increased the value of this brush, we have *reduced the price* and now offer you *the best Brush on the market* at a very low figure.

THE NEW DOUBLE SHEAR

with two sets of cutters and two sets of brushes complete, and is capable of doing twice the amount of work that a shear with one set of cutters can possibly do and requires only one operator to run it.

The great capacity of this machine for work, the fact that it takes up but little more than a single shear, and can be easily tended by one operator, together with the increasing demand for them, forces upon us the belief that *this is the coming shear.*



The New Double Shear.

SPRINGFIELD, VT., U.S.A.

Book-Keeping in the Finishing Room.

One of the most desirable things in any room in the mill, and more especially the finishing room, is a well defined system of Book-Keeping. This will enable the overseer at a moment's notice to tell just how his work stands, or where certain styles or pieces in process of finishing may be found without hunting for them all over. It is generally the case that the pieces you are looking for, will be found in the very last place you look for them, and if you are enabled to locate each place somewhere near, it stands to reason that much valuable time may be saved.

System is of benefit anywhere, but let us return to the finishing room. We find that the burlers are the first to handle the goods and we will therefore

COMMENCE RIGHT HERE.

They should be required to book the numbers of every piece they take, together with the style, and they should also be required to do this before doing anything else to the piece. This should be headed daily with the running date, and collected or looked over every morning or evening, as would seem best, by the overseer. By this the overseer is at once enabled to know exactly the amount of work performed each day, and may more readily keep his help to the point of greatest efficiency; it also enables him at short notice, and beyond any doubt, to locate bad work upon the exact party guilty of such work. This in itself is worth considerable to an overseer and incidentally to the help also, as there is no chance for any one's evading the evidence.

While the burlers have simply a pass-book in which to record the numbers, styles and necessary remarks, it is well for the overseer to have a book in which may be found a summary of all. I have found such system of immense benefit to me, even if at times it did not meet my approval, that is, the nature of the particular system. The overseer's book in order to be comprehensive may be kept as follows:

Date.	1894.	No. of Table.	Piece No.	Style.	REMARKS:
Jan.	16	2	1275	648	
		4	1290	652	One Hole.
		3	1169	679	
		1	1170	"	Runners.
		5	1276	648	

With the sewers or menders the same plan may be adopted, substituting the number of the perch for the number of the table.

This is one way in which accounts may be kept of this part of the work, and is so kept in several places giving good satisfaction.

ANOTHER WAY,

and to my mind a still more comprehensive one, is the following:

Piece Number.	Style.	Burled By	Date.	Sewed By	Date.	REMARKS:
1275	648	2	Jan. 16.	1	Jan. 16.	
1276	"	5	" "	3	" "	
1277	"	2	" 17.			
1278	"	5	" 16.			
1279	690	4	Jan. 14.	2	Jan. 18.	Misspick.
1280	"	4	" "	"	" "	2 Miss picks. Th'ds out
1281	"	3	" 16.	4	" 17.	
1282	"	2	" 17.			
1283	"	4	" "			
1284	"					
1285	648	1	Jan. 16.	2	Jan. 17.	Harness skips.
1286	"	3	" "	4	" "	Runners.

By this method it will be seen we obtain a complete oversight over all the goods and so as the latter is a system of book-keeping, which I have not seen in use anywhere, I give it for what it is worth, and I doubt if a more complete record can be given.

In case the mill is on fancy worsteds or where the weaver is allowed a certain amount of time for mending and has to pay for any excess of such time, it will be found very easy to simply add another column, in fact, if it should be deemed advisable to record some other circumstances at this stage, it would be easy to add that also.

Now I propose to show how, by this means, a piece may be

EASILY FOUND.

We will suppose that for some reason we want to know where No. 1283 is; we find upon consulting the book that the piece is burled, but has not been recorded as mended; we therefore inquire of the menders to see if it is in process of mending, or if it has been mended since making the last record. If it is not in process, or has not been mended, it certainly must be on the pile ready for the menders and will be found there.

If 1275 is wanted, we know that is either beyond the fulling mills or else on the pile waiting to be fulled and the fuller's book will soon tell us where to look for it. In this manner there is very little hunting for pieces as the date of the last process it went through will give us a fair idea how far ahead to look for it.

Next in line is

THE FULLER'S BOOK.

This should present a complete record of the handling of the goods by the

FULLER'S BOOK.

Date.	Piece No.	Style.	Inches to be Shrunk.	Running Time. h. m.	Shrunk.	Flocks. lbs.	Mill.	REMARKS:
Feb. 17.	3416	690	3.6	3.45	4.1	18	1	
	4212	"	3.8	3.40	4	16½	1	
	4211	"	3.5	3.45	4	16	1	
	4210	"	3.8	3.45	4.1	16½	1	
	3720	648	4	3.40	4.5	16	4	
	3735	"	3.2	3.45	3.8	14	4	
	3720	"	3.5	4.00	4	15	4	
	3920	"	3.6	4.00	4.1	15	1	
	2215	819	2.15	2.15	2.8	15	1	
	2216	"	2.14	2.15	2.8	15	1	
	2215	"	2.14	2.10	2.8	15	1	
	2240	"	2.15	2.15	2.8	15	1	
	2242	"	2.15	2.15	2.8	15	1	

1 hole tore on cleat.

Mill holes.

fuller, the amount to be shrunk to give weight, amount of flocks to be added if any, time required for fulling and other items of importance. This cannot very well be kept in the same manner as the foregoing, but must be kept in the shape of a daily journal.

A record as outlined in the following will be found of value to an overseer, for by it he will be enabled at some future time to know just how a certain line of goods were handled and duplicate them without any trouble. In a good many instances this will do away with costly and sometimes fatal experiments by giving the finisher at once an idea how to go to work.

We now come to the last, and in many respects the most important book of them all. In many places they care for nothing more than a record of the number of the pieces, and the net yards, to enable them to figure up

THE ACTUAL NUMBER OF YARDS MEASURED UP

each day. In some respects this answers the purpose well enough and I always make a record of each piece measured in a little passbook, for my own benefit, but to make the best of it, if this is all the book-keeping at this stage, it is a very loose way of doing business, for you have nothing to help you in any way to settle the questions which often arise. In fact, a finisher, in justice to himself, should insist upon having a proper record of all the cloth, that he may be enabled to produce an account for every yard which passed through his hand or which was under his care. There is no way better to produce this result than the form of book shown at bottom of the page.

When the finisher is allowed to sell the remnants cut off to the help, or for cash, he should in a small passbook keep a record of this and if possible a trace should also mark it on the large book, and then it becomes an easy matter to account for every yard of cloth which passes through the finishing room.

T.

Date.	Loom.	Style.	Yards.	Weight.	Picks.	Number.	Date.	Yards.	Weight.	Shrunk.	Yds. Remnants.	REMARKS:
Feb. 3.	22	819	41 2	22 4	50	2214	Feb. 8.	37 3	25.	4		
" 6.			41	22 6	"	15	" 9	37 2	25 3	3 6		
" 5.			41 1	22 3	"	16						
" 8.			40 3	23	"	17						
						18						
						19						
Feb. 5.	18	652	41 1	22 5	50	2220	Feb. 9.	36 4	25.5	3.2	1 4	Knot Holes.
" 7.			41 1	23	"	21						
" 9.			42	22 7	"	22						
						23						
						24						
						25						
Feb. 5.	19	652	40 3	23	50	2226	Feb. 7.	37 3	25.4	3.3		
" 6.			40 3	23 1		27						
" 8.			41 2	22 8		28						
						29						
						30						
						31						
Feb. 5.	20	652	41 1	22 7	50	2232	Feb. 9.	37 2	25.8	3	1	Sold Feb. 9.
" 7.			41	22 8		33						
" 9.			41 2	22 6		34						
						35						
						36						
						37						

Tape Pulleys for Worsted Spinning Frames.

We show herewith a tape pulley made by the New England Ventilating & Heating Co., 930 Manton Ave., Providence, R. I.

These pulleys have been imported heretofore principally, and we do not know of but one other maker in the United States of these pulleys, which are claimed to greatly economize power, and to possess decided advantages over the band system.

Useful Facts in Hydraulics.

Circular apertures are most effective for discharging water, having less frictional surface for equal areas.

***

To find the velocity in feet per minute necessary to discharge a given volume of water in a given time, multiply the number of cubic feet of water by 144, and divide the product by the area of the pipe in inches.

***

To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by .434. Every foot of elevation is considered equal to 1-2 lb. pressure per square inch.

***

Vertical apertures, or slits on the side and running near to the bottom of vessels, issue the water with a mean velocity due at the sill or lower edge of opening, or with the velocity due to a point four ninths of the whole height of head.

***

The quantities of water discharged in the same time through different sized apertures under different heads, are to one another in the compound ratio of areas of the apertures, and of the square roots of the heights of heads above the centers of apertures.

***

With thin plates on the bottom or sides of reservoir, the stream, issuing through circular openings, converges toward a point at about one half its diameter from the outside of orifice, reducing the quantity discharged nearly five eights from the quantity that the velocity corresponding to the head should discharge.

***

With a horizontal cylindrical tube, the length and diameter being the same, the discharge will be the same as through a plain aperture. A horizontal cylindrical tube having greater length than diameter, increases the discharge, and the discharge will continue to increase until the length reaches four times the diameter.

***

The best form of aperture for giving the greatest flow of water, is a conical aperture, whose greater base is the aperture, the height or length of the section of cone being half the diameter of aperture, and the area of the small opening to the area of the large opening as 10 to 16; there will be no contraction of the vein, and consequently the greatest attainable discharge will be the result.

The quantities of water discharged in equal times by the same apertures under different heads are nearly as the square roots of the corresponding heads, the heads being measured above the apertures.

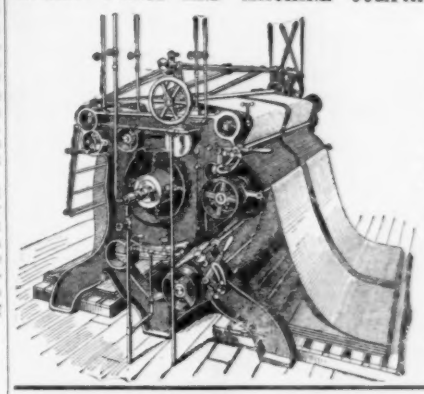
***

Water in falling is actuated by the same law as other falling bodies; passing through one foot in 1-4 of a second, four feet in 1-2 second, nine feet in 3-4 of a second, and so on; hence its velocity flowing through an aperture in the side of a reservoir, bulkhead or any vessel, is the same as that of a heavy body falling freely from a height equal to the distance between the middle of the aperture or hole to the surface of water below.

***

Never use pipes of less diameter than that specified by the builders. In long pipes this should be increased to allow for increased friction, especially in *suction pipes*.

MILLER PRESS AND MACHINE COMPANY, WOONSOCKET, R. I.



THE NEW
Miller Automatic
ROTARY STEAM CLOTH PRESS.

Adjustable in all its parts to the minutest accuracy. Fully covered by United States Patent, dated February 20th 1894. We take no back seat with our competitors in exhibiting this machine and stand ready to place it against

Any Other Rotary Press In the World

subject to the most severe tests imaginable. Full particulars and circulars will be cheerfully sent upon application. Inquires promptly answered by mail, wire, or in person.

THE AMERICAN
NAPPING MACHINE CO.
Owners of the following Patents on Napping Machines
CHAS. HEAP,
The United States Napping Machine Co.
and DAVIS & FURBER MACHINE CO.
Manufacturers are cautioned against buying or using Infringing Machines.
H. H. HEAP, Treas. and Gen. Mgr., - WILLIAMSTOWN, MASS.
DAVIS & FURBER MACHINE CO.,
Builders and Selling Agents. NORTH ANDOVER, MASS.

American Soap & Washoline Co.,
Manufacturers of
Textile Soaps
For use in the Manufacture of
Cotton, Linen, Silk, Woolen, Worsted, Hosiery and Flannel Goods, also Soaps for washing Paper Makers' Felts.
We make a specialty of Washoline, a powdered soap for use in textile mills, which is meeting with decided success in many departments.
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Dealer in and Grower of
TEASELS.
Clipped and packed to any desired size.
Teasels are grown, cured and packed on own premises.
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AMERICAN TEASELS
High Grades a specialty.
Sample Orders Solicited.

CESSNER'S
FAMOUS SPINNING
AND
Finishing Machinery
is now on exhibition at the
Philadelphia Textile School,
Having recently been removed there from the World's Fair, where it was shown in operation and received highest award.
This machinery is from the celebrated works of
ERNST GESSNER,
Aue, Saxony, Germany,
(Established 1850.)
It Includes . . .
THE LATEST PATENT CARDING ENGINE, with a second doffer below the feed table which results in a double output of a better quality;
NEW IMPROVED SPINNING FRAME with continuous winding-up mechanism;
PATENT CONDENSER OR STRAP DIVIDER with four sets of rubbers;
UNIVERSAL CLOTH NAPPING MACHINE for cotton and woolen goods;
ROTARY STEAM CLOTH PRESSES with two bed plates for continuous passage of goods and other styles;
SHEARING OR CROPPING MACHINES with two blades at each cutting cylinder, thereby giving double production;
NEW AND IMPROVED CRANK FULLING MILL with movable side boards so as to produce double effect;
Patent device for automatically lifting up the cutting cylinder to shearing machine when the seam is passing over the rest.
Manufacturers are invited to inspect this machinery at the Philadelphia School, Broad and Pine streets.
AMERICAN AGENT:
CHARLES A. FUNK,
222 Asquith Street,
BALTIMORE, - MD.

SCOTT & WILLIAMS,

ESTABLISHED 1865.

Builders of all kinds of Knitting Machinery.

NEW SELVEDGING BAR STITCH MACHINE.

FOUR PROCESSES AT ONCE.

Selvedges the Edge, makes and attaches the Trimming and inserts Ribbon at one operation.

RUNS AT SPEED OF 2000 STITCHES PER MINUTE.

The United States Circuit Court for the Eastern District of Pennsylvania has recently issued a decree sustaining our Patents on this machine and on the Trimming made by it, and has granted an injunction against manufacturers in Philadelphia who were using an infringing machine.
The attention of the trade is therefore directed to this decision, as we shall proceed promptly against any others who violate our rights by the manufacture, sale, or use of infringing machine or trimmings.

Patented, United States, Dec. 25, 1888. Patented, United States, Aug. 20, 1889. Patented, United States, Sept. 3, 1889. Patented, United States, Nov. 26, 1889. Patented, England, January 1, 1889. Patented, Switzerland, May 17, 1889.

OFFICE: 2077 East Cumberland St., PHILADELPHIA.

SHOWROOMS: 6th and Arch Sts., Philadelphia, Pa., and 116 Bedford St., Boston, Mass.

Pepper Manufacturing Co.

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Manufacturers of

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Pepper's Flat-Ribbed Cuff Machine,

Automatic Welt and Loose Course Machine for Sock Tops. New Circular Stripes with Welt, Loose Course and Striping (Automatic), for Shirt Cuffs, Sock Tops, Hose Legs, Wristers, etc.

All kinds of

CIRCULAR RIBBED MACHINES,

For Men's Underwear, Ladies' and Misses' Hose Legs & Legnigs.

CORRESPONDENCE SOLICITED.

THE

Merrow High Speed Crochet and Scallop or Shell Machines.

For finishing the edges of Knit Goods, Bed Blankets, Horse Blankets, or other fabrics.

For particulars and samples, address

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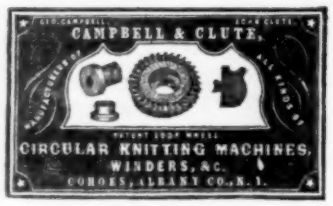
SHIRT Border Machines



Four and five Section Flat Cuff Machines.

LACINGS For Overshirts and Underwear,

Both Tipped and Tasseled, and

OVERSHIRT NOVELTIES.

For Samples and other information, address

HEPNER & HORWITZ, 84 Leonard St., N. Y.

WE NEED NO SPECIAL POINT

To prevent the needle from picking up the brass, nor special mechanism to prevent injury to the brass, for the needle in our looper never strikes anywhere but the centre of the point.

HEPWORTH & CO.,

Lehigh Ave. & Mascher Sts., Phila., Pa.

Knitting Machinery, New and Second hand. Good Gear & Taylor Pat. Stop Motion for Ribbers and Underwear Machines.

JAMES TAYLOR,

(Successor to Walter Snyder.)

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THE PENNINGTON NAPPER

For Circular Rib Machines.

Simple, Durable and Effective. Quickly applied to any Circular Rib Machine. For particulars address,

W. STAFFORD & CO., Little Falls, New York.

Franz & Pope Knitting Machine Co.,

BUCYRUS, OHIO.

ESTABLISHED 1868.

Original builders of Seamless Knitters.

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KNITTERS

Automatic Seamless Knitters, Loopers, Steam Presses, Hosiery Brushing Machines, Ribbers, Mitten Machines, etc.

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Complete Hosiery Mill Outfits. Builders of Knitting Machinery for Special Purposes.

ALL MACHINES GUARANTEED.

KNITTING DEPT.

KNITTING MACHINE CYLINDERS.

PAXTON & O'NEILL,

129 Bread Street, - - - Philadelphia, Penn.

Originators of the Weldless Forged Steel Cylinder. Cylinders and Dials, all sizes up to 24 inch, for the different Circular Rib Frames, Seamless Knitters, etc. The Finest that can be cut, and the Best as to Material Accuracy and Durability.

The Knit Goods Situation.

There has been much more business done between jobbers and retailers during the past month, and there are a number of signs which show that buyers have been both coming to market, and placing more orders with travelling men. These are signs, however, only of an improvement during the past few weeks over the many, many weeks preceding, and by no means can it be said that business is much better.

More goods are being sold (summer goods) but the orders are seldom large ones; and it is plain to be seen that retailers and country dealers are still, though now ready to buy for spring, bound to buy only according as they can sell goods.

Again, it would seem, goods are not selling at the basis calculated upon at the time of manufacture. While this lasts, whatever the quantity of goods changing hands, can business be said to be good?

Not only in knit goods and all other lines of textiles, but in every line of manufacturing, boots and shoes, belting, iron working, mill supplies, everything, we hear it said "the market has no bottom." . . . . "We can sell goods without *any* trouble, but it must also be without *any* profit," seems to be the general sentiment.

And there is much truth in this, for it is positively a fact that a great deal of building, especially the erection of public buildings and institutions, and the construction and extension of water works and electric roads, is going on or about to be started at this time and is encouraged by the low cost of materials and labor.

MILLS STARTING UP.

The Textile Advance News, our weekly paper, is reporting a larger proportion of mills starting up, but connected with these reports too often is the intelligence that a per cent. reduction is made in the wages. In not a few instances this reduction is the second and third in number. In every other line of business, these reductions seem to accompany reports of plants resuming operations.

The result,—ask the knit goods manufacturers of Philadelphia, of New York State, of New Hampshire, cheap goods and almost medium goods are not selling. Only the better grades of goods seem to change hands, for only the stouter purses are loosened to the bare necessities of life.

The reports of mills starting up and mills shutting down, together with our personal knowledge of the doings of individual concerns, makes us decidedly impressed with the changed conditions of things, particularly in one respect; mills now run on orders as they never have before.

It seems almost out of place to speak of it, so very late in the season, yet the remark is timely and altogether in keeping with *this* season, that is the mills have finished getting out samples and are now seeking orders for fall goods with them.

This work of getting out samples has been very late this year. It has also been done at a much greater expense and loss of time to the manufacturer, and none of the agents with whom we have spoken on the matter would welcome the prospect of having to go to the same great pains another season.

What would, however, if the market were only firmer, prove a compensation is the very superior quality of the goods exhibited.

HOSIERY.

Cotton hosiery has been in better demand lately, but prices are not firm. Stocks are very low, and as buyers are not importing much, there ought to be more trade at better prices.

Manufacturers of woolen hosiery have been trying for some few weeks back, to get orders on their fall samples, but do not seem to be succeeding well. Prices are not firm although the samples show an improvement an all lines over the goods of a year ago.

FOREIGN BUSINESS.

The following, taken from the Textile Mercury, of Manchester, England, gives a very good idea of the state of trade abroad:

Hosiery machinery is not fully employed. The demand is, however, fairly regular for black cashmere stockings and pure wool vests. The cotton branches are dull. On the Continent manufacturers are not busily employed, and Chemnitz suffers from the decline in the American trade, as will be seen from the following table showing the exports from that district in October, November, and December last:—

	Dollars.
Gloves, cotton	57,304
" silk	44,329
" wool	4,316
" kid	7
Linen goods	130
Hosiery, cotton	679,308
" silk	10,191
" wool	4,750
Machinery	1,258
Mufflers	962
Umbrella stuffs	5,712
Upholstery stuffs	4,832
Underwear	8,469
Vestings	37
Yarn	234
Total (including non-textiles)	822,887
Same period in 1892	1,802,709
Amount of decrease in 1893	979,822

A drop of about £200,000 in sales to a single market during three months is a very serious fall indeed, and in this case it will be observed the diminution exceeds 50 per cent. of the total turnover. This great loss of business fairly represents the condition of the trade throughout Germany with the United States, which, of course, may be attributed to the financial depression in the Republic and to the prospects of a lower tariff during the present year.

In the meantime, manufacturing of goods for the American market is only curtailed in a degree. All the mills in Chemnitz and vicinity are said to be running, but in many instances on shorter time than is usual.

Many goods are manufactured and finished, and are in the cases ready for shipment, which were made on orders given last year, but are now being held here by request of the consignees, who prefer to pay the interest on the goods and retain them here until the new tariff comes into effect. Other goods in still larger quantities are being made up by the manufacturers for two reasons: first, to enable the operatives to live and keep them together; and secondly, to be in a position to supply a large and immediate demand for goods if the new tariff should come into effect.

For the large houses who have ample capital there is not the slightest risk of loss in this, for prices will, without doubt, rise above present quotations with a large and urgent demand, which is reasonably sure to come.

The outlook for the first six months of this year is gloomy so far as actual sales are concerned, and whether the last six months will make up the deficiency remains to be seen.

The second half of the year will require to be a very busy one if the decline in sales during January and February, which will no doubt be continued until the Wilson bill is out of the way, is maintained.

"Old Supt." on the Road.

ST. LOUIS, Mo., Mar. 1, 1894.

At your request I give my impressions, confirmed by many others with whom I have talked, and who are on the road trying to sell goods of all kinds. That is the proper term to be used at present, "trying to sell," because unless prices are made ruinously low, it is almost impossible to make sales. If one makes a cut in price to make a sale, the next man who comes along has that cut thrown in his face, and has to go a point better if he wishes to obtain an order.

I have visited in the past two months Philadelphia, New York, Troy, Albany and St. Louis, and the cities on the line of the N. Y. C. & H. R. R. R., also Erie, Cleveland, Toledo, Detroit, Chicago, etc. The latter city seems to be the worst, at least, that is my experience. This cutting prices is going to be disastrous to the trade, for the working classes will eventually have to stand the brunt of it.

The great change in selling goods that I have noticed of late years in comparison with former times, is the comparatively little attention paid to the quality of the stock, and the reliability of the garment offered. The question of price is the one great factor in sel-

NYE & TREDICK,

MANUFACTURERS OF PLAIN AND AUTOMATIC

Circular Rib Knitting Machinery

For Knitting Ribbed Shirts, Drawers, Tights, Combinations, Skirts, Jackets, Caps, Bicycle and Athletic Suits, Hosiery, Shirt-Borders, Cuffs, Etc.

Auxiliary · Machines · and · Supplies.

Sewing, Crocheting and Finishing Machinery, Seamless Knitters, Winders, Loopers, Presses and Shaping Boards; also, Engines, Boilers, Shafting and Pulleys.

606 Arch Street, - PHILADELPHIA, PA., U. S. A.

CHICAGO OFFICE, 18-30 W. Randolph St., CHICAGO, ILL.

Estimates Given for Complete Equipment of a Knitting Mill.

Why do Knitting-Machine Builders Try to Produce a Machine to Make a

BRANSON SOCK?

JAS. L. BRANSON,

506 St. John St., Philadelphia.

Is the original inventor and manufacturer of this class of Machines, and, like most originators, manages to keep ahead of all imitators. Send for Circular A.

ling. The buyer does not seem to appreciate the difference between a good and a poor article, the consequence is, after the goods pass into the retailers, and consumers' hands there is a great deal of fault finding and kicking, which passes along back to the manufacturer, whose lot at the present time is not a happy one.

In St. Louis, where I am at present, the trade is a little better, and there is a confident feeling that goods are becoming scarce, and that mills which have been idle so long will have to start running to furnish goods for the fall trade. There is no demand for summer goods at any price, for the market is full of a line of cheap goods, from $1.00 up. Someone has sold so cheap that one wonders how the goods could be made so cheap, even if they stole the yarn without being caught.

It seems to me as if most of the anticipated ill effects of the proposed tariff system have been discounted. What the trade now most desires to know is what the duty on imported goods will be, and the sooner this is settled, the better for the trade. Nearly everyone is agreed that goods are selling as low now as they are likely to sell for many a day, and that when this uncertainty gives place to reality, that there will be a great demand to replenish stocks at better prices, and some lines are nearly exhausted.

Stocks cannot be filled up at once, as the stoppage of all the No. 1 knitting plants more or less since last July, has had a good effect on the market. It is a very good thing that they did shut down, otherwise there would have been heavy losses on some lines of goods, especially on woolen goods. I saw a fine line of all wool, heavy 20 inch gauge scarlets which was purchased for $6., and I know the company that sold them. It took me by surprise, for if such figures were made under a protective tariff, what would be the result under the new bill.

It will make harder times, it seems to me, than when I was a hand spinner, forty years ago, when we worked from five o'clock in the morning until six and seven in the evening, for the paltry sum of $1.00 per day. This was the schedule time for all hands, summer and winter, closing Saturday at five o'clock. The gates closed ten minutes after the bell tolled, and all who were behind who worked by the day, were docked their time, and at the end of the month, when pay day came, were minus so much. Pay day was only once a month, and some places once in three, and in others no settlement at all, unless you got through working. Some had to take their pay out of the stores, which were run for the benefit of the manufacturer. This did not happen away in the Virginias or Carolinas, but occurred within the sound of the bell of the capital of the Empire State.

This was not standard or meridian time, city time or railroad time, as is often mentioned when travelling, but this was "factory time". The time was calculated from the revolutions the wheel made in the day, and if the governor or regulator did not perform its duty well, we might have to work sometimes five or twenty minutes more. It is an ingenious device attached to the wheel on the side at the segment by pins, and from there to the clock by means of a small shaft and worm, so the motion was imparted to the clock in the same way as by the pendulum to the verge. You may judge what factory life was two score and more years ago, and I can call to memory nearly a dozen people in Cohoes who are still alive who worked under that style of slavery and free trade, if so called. I want no more such days.

Take warning, young Americans, how you vote, if you do not wish to return to such times as I have pointed out. Even in the New England States, the hours were worse, to which thousands today who worked in the mills, can testify.

One word more, and I close this letter. I would say for the benefit of the manufacturer, it is hard to know what to manufacture for the present season, for there is really no given style required, that I have found in all my travels; the market is void of such. What is wanted most in this section is a heavy garment for the Northwestern trade. It matters not what it is made of, if it is only heavy and sightly, and can be sold cheap or nearly given away, as the scarlet I mentioned, which was of a good quality. I told the jobber, "Purchase all you can at those figures, and you need not care about the tariff reform."

OLD SUPT.

Practical Talks on Knitting.

III.

SPEED OF KNITTING MACHINES.

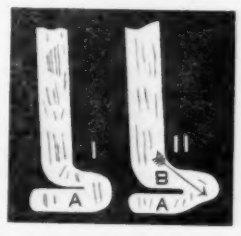
Manufacturers are compelled to push every thing in order to keep up with competitors. This has its bad results as well as good. One of the principal is in regard to the speed of the machines. A cut in the prices of goods is made, and the manufacturer, in order to save himself, reduces wages and speeds up the machines, so that, according to figures on paper, the operatives ought to earn as much when working by the piece, as before. This scheme is resorted to considerably in large weave shops, and often it works. Of course there is a limit, for the looms cannot be made to run too fast, or bad work and breakages of the machines will follow.

Knitting machines, however, are more intricate and delicate in mechanism than the loom, and cannot stand so much experimental work. There is a decided limit to the speed of all knitting apparatus. The failure of mechanics and others who have charge of same, to discover this limit, is the source of much expense to the owners of the machines, and in reality a loss to the operatives.

American builders of knitting machinery are famed for the excellency of their manufactured product. They build knitting machines which are a model of simplicity and durability, yet, as one machine maker said to me "one bungling fixer does us more harm in a week than we can overcome in a year."

SPEED OF THE MACHINES.

Good fixers claim that a seamless machine ought not to be run over 275 revolutions per minute, yet the writer has often gone to work in mills where the machines were being operated at the rate of 350, and in one or two cases, 400 revolutions per minute. When a new man takes hold as boss in a knitting room he delights to increase the output. This is done frequently, at the loss of much money to the manufacturer, although at first there appears to be a gain. Sometimes the increased output is gained by using yarns of a heavier weight, but often it is done by increasing the speed of the machines. The result is that more goods are turned out and the manufacturer smiles and says the new man is a good one; but when the statement of broken and worn out needles, damaged goods, etc., comes in at the end of the month, the manufacturer does not feel happy, and the explanation that the same is only the result of a little higher speed, and that the increased output counterbalances the loss, is unsatisfactory, because nine times out of ten, he finds that what he first supposed to be a gain, is practically a dead loss. Damaged goods, seconds, broken needles, etc., are secondary points as a result of the increased speed, to that of the excessive wear on the machines and needles. This is shown in the cut.



ONE RESULT OF TOO HIGH SPEED.

In this drawing the lower parts, including the butts, of two common knitting needles are shown. In figure 1, is a perfect needle, showing how it looks when taken from the pack in which it was shipped to the mill. The butt *A* is full and even, as may be seen. In figure 2 the same needle is shown after it has been run on a seamless machine at the rate of 385 revolutions per minute for seven months. The butt is marked *A*. The part where the extreme wear of the cams have had their effect, is pointed out by the arrow *B*. The needles ought not to wear off like this. They are made of good material as a rule, and if properly handled will run for months without showing the wear exhibited in this specimen. But what can be expected when the cams of the machines are made to contact with them at the rate of 385 times each minute? This needle marked No. 2 was not selected from a lot of others for the purpose of showing this defect, but was picked up promisciously from a pile of needles thrown aside in a large knitting room. Many of the needles were in worse condition than this, and some not so bad. The above is a good representative of the average.

Now if the butts of the needles wear like this when the speed is too high, it follows that the cams and relating parts of the machine are wearing too. At this rate, the owner of the machines will have to replace them with new working parts inside of a few years. Then, much of the gain which put money into the manufacturer's pockets, will be lost, owing to the fact that he must purchase a new outfit of needles and accompanying parts. High speed, when too high, is disastrous. Firms who are now running their seamless machines at the rate of 250 revolutions per minute are doing well. Of course the comparative production is not large, but with less seconds, less breakage of needles and other parts of the machine, and finally less wear of the whole mechanism, the gain in the end is more.

(Continued.)

BRINTON, DENNEY & CO.,

Builders of a Full Line of

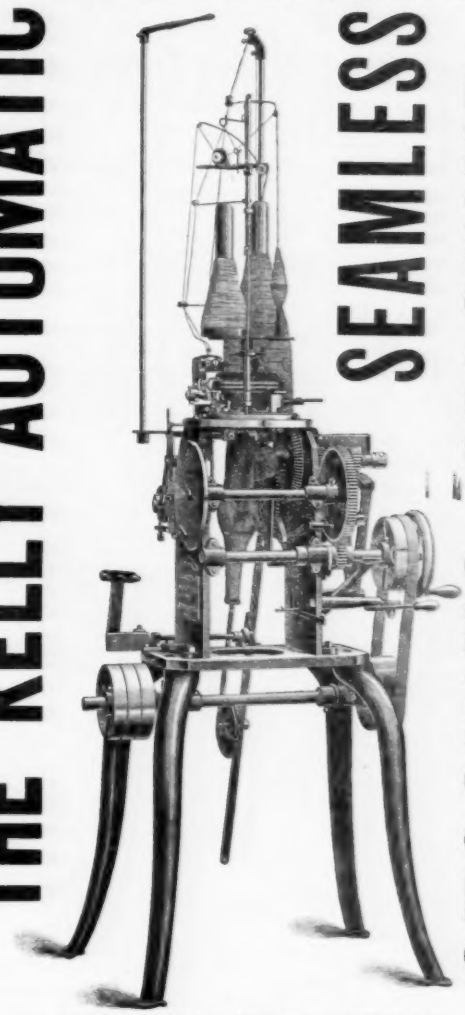
CIRCULAR RIB AND SEAMLESS Knitting Machinery,

For Underwear and Hosiery.

213 and 215 RACE ST., - PHILADELPHIA.

HIGH GRADE PRODUCT AT LOWEST POSSIBLE COST

THE KELLY AUTOMATIC SEAMLESS STOCKING MACHINE.



CONTROLLED BY J. A. BURLEIGH, LAKEPORT, N. H.

This machine is the invention of a Practical Knitter of twenty five years' experience, and the aim in producing it has been to secure

Largest Practical Production

with best and most uniform quality of work, from all grades of yarns. The Machine is extremely easy in operation,

LIGHT RUNNING AND EXTREMELY EASY ON YARNS,

allowing the use of stock which is impossible to knit on some other machines.

Can be seen in practical operation at Lakeport, N. H. Correspondence and fullest investigation of its merits solicited.

J. A. BURLEIGH, Lakeport, N. H.

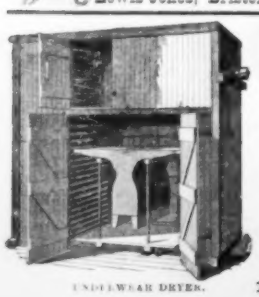
THE
KEYSTONE
KNITTER
For Seamless Hosiery.

CYLINDERS
OF
Forged
Steel
With bevel top for perfecting the stitch in the plain fabric and closing the gore in the heel and toe.
Automatic Ribbers, Loopers, Winders, Steam Presses, etc.
Keystone Knitting Machine Man'f'g Co.,
1716-20 NO. FIFTH ST., PHILADELPHIA, PA.

CHAMPION SEWING MACHINE COMPANY,
REMOVED to 1510 North Fifth, and 1522-26 Master Streets
PHILADELPHIA.

Also New Champion Crochet Machines, new ribbing and trimming machines for all descriptions. Send for descriptions.
Rib Knitting Machines of all Kinds.
BUYERS AND MANUFACTURERS OF
UNDERWEAR,
Jerseys and Cardigan Jackets,
will serve their own interest by investigating the merit of the "NEVER RIP" SEAM.
All single-thread stitches have proven to be unsafe. A lock stitch is not sufficiently elastic.
A STRONGER AND MORE ELASTIC STITCH is now required.
THE UNION HOSIERY MACHINE
Makes a SAFE, ELASTIC, TWO-THREAD STITCH that will not rip.
For circulars, with full particulars, address the
UNION SPECIAL SEWING MACHINE CO.
47 Leonard Street, New York;
60 Michigan Street, Chicago, Ill.
CRANE MFG. CO.
LAKEPORT, N. H.
Spring Needle Circular Knitting Machine
For Hosiery, Shirts, Drawers, Jersey Cloth and Stockinet.
A Specialty of Hardened Bladed Burr Wheels with Self Oiling Brackets.

The BALLOU
Automatic Ribbed Knitting Machine
Built with Sectional Cam Ring and the most perfect weight take up. Best, Strongest and Most Durable Machine. Send for Price List.
Lewis Jones, Bristol, Pa



UNDERWEAR DRYER.
Cyclone Dryers
—FOR—
Stockings, Underwear, Stock, Yarns, Cloth, Etc.
Textile Machinery and Shafting Work.
PHILADELPHIA
TEXTILE MACHINERY CO
Hancock St., above Lehigh Ave.,
PHILADELPHIA, PA.

Combination Suits.

Manufacturers of this class of ladies' and misses' underwear find the demand increasing each season, and it is likely to attain very great proportions when the comfort and convenience of these garments are generally known and well understood.

The attention of inventors has been directed recently to the production of goods which will combine great ease and elasticity with perfect fit. This has been accomplished in one make put before the trade by abolishing the stay band down the front, and opening and buttoning the suit across the chest. The trade has laid hold of the patent and has placed liberal orders, and it is likely to prove a very successful innovation on the old style.

Another line of this class of goods is noted for its variety of fabrics, including cotton, merino, silk, silk and wool and worsted, and for the large range of colors in which these goods are offered, including black, cream, white, tan, gray, gold, natural and flesh. The latter color seems to be one of the special favorites of the season.

They are made in a very wide range of grades and prices, commencing low enough to suit the most popular class of retail trade.—[Dry Goods Economist.

Hosiery Silks.

In the silk trade, only two distinct kinds of silk are produced for hosiery purposes, viz:—net silk and spun silk.

These terms not being so well understood by our trade as their difference warrants, we here give a definition of such difference.

The raw silk being the produce of the silkworm, requires a certain manipulation before being suitable for hosiery trade purposes. This consists in the winding from the cocoon of the fine threads, and so combining them as to produce substance and strength. *Net Silks* are the product of such windings, while *Spun Silks* are those threads spun from the waste during this winding, the unwindable cocoons, and any of the wound silk that may be indifferent from some cause or other.

It will at once be seen that, for sewing purposes, the net silk is the better of the two, for by its construction, being a continuous of the fine long threads obtained from the cocoons, so combined as to give the greatest resistance to any strain that may be brought to bear upon it; while in spun silks, those continuous lengths do not occur, the waste used being torn up, and the thread spun on similar principles to our ordinary cashmere yarns.

For knitting purposes, the latter kind, it will be seen, is preferable to the net, as here we do not require to provide for the strain of sewing, but to have that softness and fulness so essential for knitting yarns.

When soft spun, the latter is used for purposes of embroidery, and introduced with other yarns for producing of designs in various branches of our fancy trade.—Knitters Circular, Eng.

In this country the term *"thrown* silk" is more generally used than *net* silk. [Ed.

—We would call attention to the advertisement of the Pennington napper for circular rib machines, which W. Stafford & Co., of Little Falls, N. Y., advertise on page 10. This can be easily applied to any circular rib machine, and is well worth investigating. The manufacturers will be pleased to give full information on application.

—E. Jencks Mfg. Co., manufacturers of hosiery, Pawtucket, R. I., will hereafter sell their goods through Cooley, Turnbull & Co., dry goods commission merchants, 24 & 26 Thomas Street. Mr. W. B. Bradbury will have charge of the account.

Looper, Raveller and Trimmer Combined.

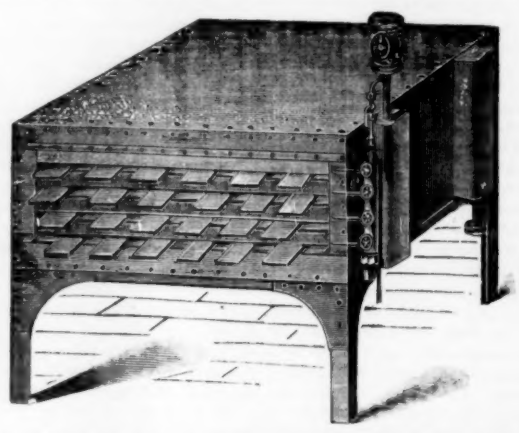
The illustration shows the new Rightmire looper raveller and trimmer combined. Special stress is laid on the elastic stitch produced on this machine, which the manufacturers claim leads all other makes in point of elasticity, also that their single stitch looper dispenses practically with the double stitch machine. It is adapted for hosiery as well as for underwear, and the American Knitting Mills Supply Co., 523 Arch St., Philadelphia, who handle this device, refer to a number of prominent manufacturers, who are running them with satisfaction. This company handles a number of specialties, among which are the Excelsior Semi-Automatic Attachment for hosiery machines. We are informed that they are also at work on a new automatic ribber.

Apparatus for Steaming Hosiery.

It is well known that at present, in order to preserve the shape of the leg in stockings, it is necessary to steam them stretched on wooden frames. To this end, says L' Industrie Textile, a certain quantity of the goods are placed in a special box, which constitutes the steaming stove, and when the doors of the apparatus have been closed a tap is opened for an instant, which supplies a series of jets by which the fabric is moistened.

This procedure is not unattended by inconveniences. As the changing of the stove is made by portions, and as the stove contains a large number of frames, the result is that those first placed in the apparatus undergo several vaporizing processes, which does not answer the end—for it is necessary that the tissue should be dried after having been moistened. Besides, the stove must be provided with very large doors if it is to be accessible, and at each opening of these doors there is a considerable lowering of the temperature. Lastly, a great quantity of damp steam escapes from the apparatus, and this, if diffused throughout the workroom, makes it unhealthy and unsuitable for work.

To remedy these defects M. Menesson, the inventor of the apparatus under consideration, has constructed the stove of sheet iron, and has sheathed it with a non-conductor, to avoid losses of heat externally. Besides, his box contains several compartments (the illustration represents four) also made of sheet iron, blocked in front by a band of felt, which obstructs the entrance. The steaming is effected in each compartment by means of a cock specially mounted on a feeder so arranged as to avoid water. The frames rest on supports to prevent their touching the sheet iron. Each compartment has two serpentine pipes in contact therewith.



With the help of these arrangements it is possible to reduce the expense of fuel to a minimum, in consequence of the slight surface of heating area employed, and the slight volume of air for moistening and drying. A high temperature is also steadily maintained, since there is no more opening of doors. The number of frames is reduced, so as not to exceed six per compartment. Lastly, the disengagement of steam is practically *nil*, as the quantity employed for the vaporising process is only what is strictly indispensable, and the accumulation of water becomes impossible.

The Manufacture of Petroleum Briquettes.

Fuel bricks of crude petroleum, of similar form and size to the coal briquettes extensively made in France and Germany, are now being used in the Italian navy. The mixture is made in the proportion of 1 litre of petroleum, 10 per cent. of rosin, 150 grms. of powdered soap, and 333 grms. of caustic soda. The mixture is heated and stirred at the same time; solidification begins in about ten minutes, and the operation must then be carefully watched. If there is a tendency to remain liquid, a little more soda is added. The mixture is stirred until the mass becomes nearly solid. The thin paste is then poured into the moulds, which are placed for ten or fifteen minutes in a drying stove. The briquettes are then cooled, and are ready for use in a few hours. The addition of 50 per cent. of wood sawdust and 20 per cent. of clay of sand is recommended as making the briquettes cheaper and more solid.—Mechanical World, England.

—Mr. Herbert Myrick, treasurer of the Metallic Drawing Roll Co., Indian Orchard, Mass., is on a trip through the South and Southwest, accompanied by Mrs. Myrick. He will combine business with pleasure, visiting the principal cotton mills in that region in the interest of the Metallic Roll, which is proving so satisfactory South as well as North. Mr. and Mrs. Myrick will make a flying trip to California, returning via Denver.

Personals.

—Alonzo Martin has recently accepted an overseership in the Harris Cotton Mill, Woonsocket, R. I.

—J. P. Lennan, of Moncton, N. B., is the new manager of the Hopewell Woolen Mills, Hopewell, N. S.

—John Gordon succeeds James Lowe, resigned, as overseer of spinning at the Smith & Dove Mill, Andover, Mass.

—W. S. Porter, second hand of weaving in the No. 4 mill of the Riverside Mfg. Co., Danville, Va., has resigned.

—George I. Dickey has been appointed overseer of carding and spinning with the Bigelow Carpet Co., Clinton, Mass.

—E. N. C. Snow was elected president and Festus Fitts, secretary, of the Tuscaloosa Cotton Mills, Tuscaloosa, Ala.

—Henry Schaeffer, of Lowell, Mass., has accepted the superintendency of the Manchester Print Works, Manchester, N. H.

—Thomas Pendergast is the new overseer of picking, carding and spinning with the Ashland Knitting Co., Ashland, N. H.

—John Fox, formerly of Philadelphia, Penn., is now in charge of the Scotland Neck Knitting Mill, Scotland Neck, N. C.

—Jessie Payne succeeds W. G. Henderson, resigned, as superintendent of the Muscogee Mfg. Co.'s mills, Columbus, Ga.

—William Robinson, overseer of dyeing with A. Howarth & Son, Rockdale, Mass.; has recently returned from Europe.

—L. J. Madden, of Harrisville, R. I., has accepted the overseership of No. 1 mule room of the Manchaug Co., Manchaug, R. I.

—Mr. Iler, of Peidmont, S. C., has accepted the superintendency of the Harmony Grove Cotton Mill, Harmony Grove, Ga.

—James H. Parker has resigned as superintendent of the Glasgow Co.'s mill, So. Hadley Falls, Mass., and accepted a similar position in Pawtucket, R I.

—H. E. Brann, lately of Argonaut Cotton Mills, Covington, Ky., is now second hand of ring and mule spinning with the Millville Mfg. Co., Millville, N. J.

—L. D. Wilkinson resigned the overseership of weaving in the Wauregan Co.'s mills, Providence, R. I., which position he has held for the past seven years.

—Joseph E. Dupre has resigned as second hand of weaving in the Acushnet Mill No. 1, New Bedford, Mass. The employees of the weave room presented him with a purse of money.

—T. S. Drury, overseer of designing and weaving with Beckman & Co., Cleveland, O., has resigned and accepted a similar position in the Clear Lake Woolen Mills, La Porte, Ind.

—Harry H. Boyd has resigned his position as overseer of spooling, twisting and warping in the City Mills, New Bedford, Mass., and accepted a similar position in the Bennett Mills of that place.

—Joseph Riley, formerly second hand of mule spinning at Ann and Hope Mill, Lonsdale, R. I., has been with the Smithville Mfg. Co., Willimantic, Conn., since a few months past as overseer of mules.

Pumps should always be drained in cold weather, as freezing of water in pipes or cylinders is sure to burst them. Engineers should therefore be careful and open the drip plugs and cocks which are provided on all pumps for draining them.

***

Water at high temperature cannot be raised any considerable distance by suction, as the vapor discharged from the water so heated follows the receding pistons of the pump and resists the entrance of the water; consequently to pump hot water, always place the supply above the pump, so that it will be supplied from a head.

The Dyeing of Underwear.

Editor of Textile World:

The thought that an article on the dyeing of knit underwear might prove interesting to those who have followed up the articles on washing and fulling by "Old Superintendent" in your journal, has induced the preparation of the following:

The dyeing of underwear is now mostly done in circular dyeing machines or

"REELS"

and my remarks will be confined to this form of dyeing. These machines have proved so superior to the old forms of kettle-dyeing, in regard to uniformity and evenness of shade, production, economy of time and labor, that those still adhering to the old form of kettle-dyeing, will find it advantageous to immediately investigate the merits of machine dyeing.

The machines, as they come from the makers, generally lack the elements of durability and strength. These deficiencies can however be readily supplied by providing heavier hinges and clasps for the doors, and by placing sectional tires or hoops around the edge of the cylinder. All metallic portions should be of brass, bronze, copper or some metal or alloy not readily affected by dilute sulphuric acid.

We will assume that we have our machine set up and ready for work, and that we wish to dye our goods in lots of 32 dozen each, composed of one-half drawers and one-half shirts.

THE WASHERMAN SHOULD SCOUR

at a time four dozen shirts and four dozen drawers, and count the goods from the extractor into piles of 5 4-12 dozen each, as the machine is divided into six compartments. The machine is filled with water to a point, which will allow for condensation of steam during boiling without overflowing the tub; Glauber's salt and acid are added in proper amounts; the dyestuffs dissolved in hot water are strained into the bath; the machine run empty for a few turns to provide for thorough mixing, and the machine is then ready for the goods.

The bath can be heated to any temperature at which it is desired to enter the goods, but with the acid colors generally used in dyeing underwear, good results are obtained by entering the goods into the cold bath.

Two men can conveniently and quickly

LOAD THE MACHINE,

one man bringing the proper boxes into position and opening them, while the other delivers the goods from the piles already counted as mentioned above.

After the machine is loaded, it should be allowed to turn a few minutes without steam, to allow the goods to become well saturated with the dye liquor. The steam can then be turned on, the bath brought to a boil in the course of a half hour or so, and after boiling 15 minutes, a garment can be taken out of each compartment, cooled off in a barrel of cold water conveniently placed for the purpose, and hydro-extracted. They should then be compared with each other for evenness, penetration of seams, and finally

COMPARED WITH THE SAMPLE

showing the required shade. To do the latter, it is best to cut off a piece from the top of a drawer and dye it, and keep for future comparison if the shade is not correct.

After making the necessary comparisons, the goods are returned to the reel. In case the goods are all right for evenness etc., but if incorrect shade, the steam is turned off and the dyer proceeds to add what he deems necessary to perfect the shade. The dyestuff is dissolved in warm water and slowly poured into the front of the machine with a pitcher or other suitable vessel, the reel turning all the time and the steam shut off. After turning a few minutes with the steam off, the bath is again brought to a boil and maintained there for about 15 minutes, when

ANOTHER COMPARISON.

similar to the one before mentioned, is made. If the shade is correct and the goods all that can be desired for eveness etc., the bath is drawn off, the tub filled with cold water and the goods allowed to turn in this for a few minutes to thoroughly rinse them from acid and salts.

One rinse will suffice, but I have found it better to

USE TWO RINSES,

particularly on goods containing cotton.

Suppose however, that instead of the shade being correct and the goods even, the bodies are of a different shade than the sleeves and that the contents of one box are not the exact shade of those of another box.

Such unevenness can generally be remedied by the addition of more Glauber salts and continued boiling. Small additions of dyestuff also have a beneficial effect in evenning up the goods. An hour's boiling will generally even up the worst cases met with. In the case of

UNEVEN LIGHT SHADES

it is often advantageous to re-dye the goods into a dark shade where the assortment and orders render it possible. If the dyer is sure that these unevennesses do not come from imperfect washing and fulling and differences of stock it is well for him to look into the rapidity with which the goods come to a boil, and the amount of acid and salts in the bath.

A pin between the boxes breaking out will cause the goods to entangle or "knot" forming bare places or spots. Such spotted goods should be returned to the reel the next time the same shade is dyed and entered with the goods that have been taken out for examination as to shade etc. If however, the goods get knotted with the machine in good order it is an indication that the machine is overcrowded. In such cases I have resorted to dyeing the shirts and drawers in separate batches, with good results. Especial pains must be taken to have the shirts and drawers

CLOSELY MATCH

each other. In dyeing the shirts separately, a couple of swatches should be placed in a marked box to furnish small bits for comparison.

In machine dyeing the goods shrink more than in kettle dyeing, due to the turning and pounding of the goods against the sides of the machine, an operation very similar to fulling in the mill, and allowances must be made for this in the fulling.

Assuming clean goods, uneven dyeing of underwear in a reel is of very rare occurance and can generally be traced to

SOME ACT OF CARELESSNESS

on the part of the operative. I have seen such cases occur from not closing the draw off valve tightly, allowing the liquor to leak out until its surface was beneath the cylinder containing the goods.

But as I have already consumed a great deal of space I shall close with an endeavor to say more on the same subject at some future time should the editor deem the remarks worthy, and merely add in conclusion that close personal supervision of every detail should be the aim of the dyer and particularly so of every BIGINNER.

Suggestions on Stockings.

Continued from February.

As stated in our last article, a stocking knitted the same size from toe to welt, is an unsightly and ill fitting product, and is fast being supplanted by those of design and shape.

At the risk of causing some mental profanity, allow me to say that the days of the seamless *hand* knitting machines for factory use are numbered, and from a sanitary point of view, the sooner the better, as there have been many young girls physically ruined by the constant use of but one side of the body, causing curvature of the spine, to say nothing of other complaints.

If seamless stockings are to be made presentable, the machine should be capable of knitting tight and loose, so that from the calf to the instep, the needles may draw the loops tighter, which is about all that can be done to give shape to the stocking. Then if the work is made continuously or in a string, when the goods are cut, care should be taken to

CUT THE FABRIC STRAIGHT ACROSS,

so that when the top is welted or hemmed, the appearance will be uniform, and not look like the cornice of a Japanese veranda.

The welt should be not less than one inch wide on a No. 9 stocking; one inch and one quarter will however look better. It should be very elastic, being made more so by the use of the concealed stitch, rather than by stitching through the goods. It should also be turned down straight, all the way round, before putting the stocking under the machine to be sewed, and a gauge used on the welter to keep it straight, and to prevent the stitches from going entirely through the goods.

As mentioned in a previous article in this paper, care should be taken in

CLOSING THE TOES,

and they should be closed on a machine whose *points are wider apart than the gauge of the fabric*, being very particular that the tension is not too tight, as this tight tension is what makes the line of union so perceptable on this make of goods, and detracts much from their appearance.

The above describes the goods that are being made for the millions, but at best, far from a perfect stocking.

Allow me to suggest

HOW TO MAKE A BETTER ONE,

and one that will (or should) find a more ready sale when its qualities are examined into.

Procure a round frame (spring beard needle) 4 1-4 inches in diameter, with 216 needles, and a good automatic machine 3 3-4 inches in diameter, with 160 needles; knit the foot and part of the ankle on the automatic; this can be done in string style, i.e., two or three dozen together. Cut these carefully at the proper place, run these on the round frame by stitch; this will leave 56 needles on the round frame unoccupied. This open space should be filled up with a strip, filling all the needles (and care should be taken that this extra piece should be held up with weighted hooks).

Now knit the leg the desired length, cut off straight, welt the top as above indicated, and shape the calf by the use of the sewing machine and trimmer, and you will have a stocking that will fit both in the foot and leg, because you have 56 more stitches in the leg than there is in the foot. Now why is this not a good stocking, with good yarn and good workmanship?

GIBBONS FRAME.

American Hosiery.

The removal of one of the prominent lines of woolen hosiery back into a commission house, after trying the direct selling for a year, is a notable feature of the week. It is a peculiar feature of the woolen hosiery business, says the Economist, that it seems to thrive best under the fostering care of the capital of the commission house. The reason for this is, perhaps, that, having only one season, considerable capital is required to carry the stocks and accounts, and the short credits necessary for the success of the direct selling business are useless in the woolen branch.

Samples are ready, but up to date (Mar. 1st) no salesmen have started to sell for the fall account. It will probably be after March 1st before salesmen in the woolen hosiery business are on the road. Prices at the present time are about 10 per cent. under last year's quotations.

Two Letters.

No. 1.

W. H. & R. S. TUCKER & CO., ESTABLISHED 1818., DRY GOODS OF ALL KINDS.

RALEIGH, N. C., Jan. 22, 1894.

Messrs. Guild & Lord, Boston:

Gentlemen: Referring to yours of the 20th inst. we beg to say that we have disposed of our cotton factory interest and so will not need the TEXTILE WORLD longer. You will discontinue our subscription and oblige,

Yours truly,
W. H. & R. S. TUCKER & Co.

No. 2.

RALEIGH, N. C., Feb. 10, 1894.

Messrs. Guild and Lord, Boston:

Gentlemen: We have come to the conclusion that we cannot very well do without the TEXTILE WORLD and so beg to hand you inclosed postal note for $1.00 to pay subscription for one year.

Yours truly,
W. H. & R. S. TUCKER & Co.

Ordinary speed to run pumps is not over 100 feet piston travel per minute. For continuous boiler-feeding service about one half that speed is recommended.

***

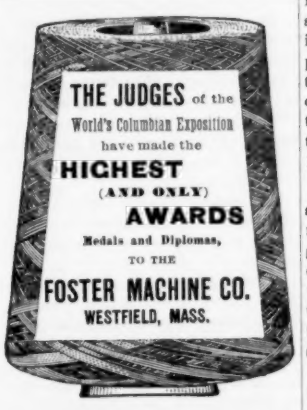
Doubling the diameter of a pipe increases the capacity four times.

***

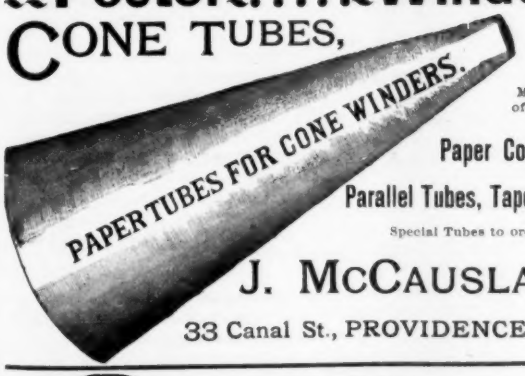
A gallon of water (U. S. Standard) weighs 8 1-3 lbs., and contains 231 cubic inches.

***

A cubic foot of water weighs 62 1-2 lbs., and contains 1728 cubic inches, or 7 1-2 gallons.



For Foster and other Winders,
CONE TUBES,



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Parallel Tubes, Taper Tubes,
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RIBBONS
To Trim UNDERWEAR.
Best Qualities. Write for information to
JOSEPH LOTH & CO.,
Manufacturers,
65 Greene Street, - - - New York City.

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Sewing Machines, with or without Trimmers.
SPECIAL FEATURES:
Welting Machines, Finishing Machines, Machines for Sewing Wet Goods, Machines for Double Heel Work, Machines with Concealed Stitch for Tops of Stockings, Etc., Etc. Tables and Shafting with Transmitters.
All machines have Ball and Socket Bearings, with Hardened and Ground Working Parts.
MACHINE JOBBING.
Manufactory, Second and Diamond Sts, Philadelphia.

WM. COREY CO.,
Manufacturers of Knitting Machine
Latch Needles,
MANCHESTER, N. H.

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MANUFACTURERS OF ALL KINDS OF
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Knitting Needles
New Brunswick, N. J.

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The Best Hosiery Needle in the market.
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Manager.
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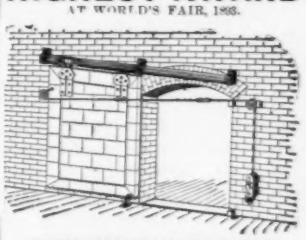
AT WORLD'S FAIR, 1893.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STEEL AND BRASS MAILS. J. WALDER, Paterson, N. J.

Liberal discount to Dealers. REEDS, HARNESSES, LINGOES, SHUTTLES AND QUILLS.

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Reeds and Harness,

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JACQUARD DESIGNERS AND CARD CUTTERS.

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Roving Spindles and Flyers a Specialty. Light Forgings. Repairing of all kinds.

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Solid Braided Sash and Other Cords, from Cotton, Linen, Italian Hemp, Jute, Etc.

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OUR MACHINES will turn out 25 to 40 pounds daily of Cotton Sash Cord and make the strongest, stiffest and best Cord on the market. We are ready to negotiate for the placing of a limited number of these machines (built under our own patents) in this and foreign countries.

COTTON DEPT.

Ginghams.

The second article on this subject which was begun in February issue, will appear in April number; it was received too late for publication this month.

Chats on Cotton Combers.

For The Textile Mfg. World.

II.

"This end will not come through. It keeps going down in the waste-box," remarked George to the overseer.

"Perhaps the needles on the top comb have got rusty, as the perspiration from the comber-tender's hands when she is cleaning them will rust them. It is a good plan to make them clean the needles with a piece of soft waste, and thus avoid rusting them. They should be kept bright and clean to do their work well," replied the overseer.

George looks at the top comb, but finds it all right. "Well," continues the overseer, "examine the lap; it seems to me the selvage is very thick on one side. When that comes between the nipper and the cushion-plate, they only meet on the cotton for an inch or so, and the needles on the cylinder pull all the rest of the lap out, as far back as the feed rollers, and take it around to the back where the brush takes it off, and puts it on the doffer, which in turn takes it off into the box."

"Well," says George, "how does that thick selvage on the lap get there?"

"I will show you," responded the overseer. "First, we will look at the ribbon machine where that lap was made. That lap has a red crayon mark on it, which shows that it was made on that ribbon machine next to the wall; we will walk over there and look at it.

"That machine keeps knocking off. Watch that boy, and I think you will find the cause of that thick selvage. There it is now. The lap on the back of the ribbon machine, as it grows smaller grows lighter of course. Now those stop levers are heavier on one end than the other, so that when the laps run out, the levers will tip back, and catch on the parts set there for the purpose of releasing the spring and knocking off the belt.

"Now the trouble is, those stop levers are a little too heavy on the back. They are so heavy that when the lap runs down until it has only a dozen layers or so on the spool, it drops back until it catches, pulling the lap around sufficient to allow the belt to knock off; then the boy comes around and pushes the lap foward, thus taking it off the back wooden roller, and running it between the front wooden roller and the back plate. That causes the back fluted and leather rollers to pull the lap around by the small sheet of cotton between them and the lap, almost wholly.

"The lap having nothing to guide it over the stop lever, works off to one side, thus making the selvage thick on one side as it goes to the rollers, and comes out at the front, and runs up on the other lap correspondingly thick, thus causing the end in the comber to break off, as decribed.

"Now if you will file a little off the heavy end of those stop levers, you will not be bothered that way any more."

"I came to tell you that we are going

TO STOP THIS COMBED WORK,

as there is no demand for it at present," said the overseer to George a few days after the above conversation. "You may stop those Curtis combers now. Run the Dobson & Barlow combers until you run the laps all out, and then have the comber tenders give them a good scouring, while you may go around your Curtis combers and examine the top combs and cylinders, and if you find any bad ones, take them out and get them repaired. It is of the greatest importance that these are kept in good condition at all times, otherwise they will have a very bad effect on the work, allowing it to come through neppy and stringy.

"Some one has made

A BOTCH JOB

of these cylinders! I want you to tell the man that repairs them, that he has been using the Curtis blocks for the Dobson & Barlow cylinders, and *vice-versa*.

"The Dobson & Barlow blocks give a longer point to the needles than the Curtis blocks do, and when they set up the needles for the Curtis cylinders in the D. & B. blocks, the needles are too high, and strike the fluted detaching roller, thus breaking the needles out, beside destroying the flutes.

"If the needle repairer sets up Dobson & Barlow cylinders in the Curtis blocks, the needles are considerably below the level of the surface of the fluted segment, thereby causing inferior work, as it would not allow you to set to the best advantage.

"I want them set like this:

No. of Strip.	No. of Needles.	No. of Block.
1	20	20
2 to 6	22	22
7 " 9	24	24
10 " 11	26	26
12 " 13	28	28
14 " 15	30	30
16 " 17	33	33
Dobson & Barlow		
1 to 3	20	20
4 " 6	22	22
7 " 9	24	24
10 " 11	26	26
12 " 13	28	28
14 " 15	30	30
16 " 17	33	33

Top Combs 28 Needles in 28 Block.

"While you are waiting for the needles, take a boy, and have him clean the brushes, and you go around and set them up where they need it. Take the spare hands, and have them clean and pick out all the teeth in the gears in the coilers. As fast as the girls clean their combers, have them take out the leather detaching rollers, also the leather rollers in the draw-box, and you examine them, pick out all loose or otherwise bad rollers, send them off to the roller-shop and get them re-covered. After sending the rollers off, varnish the good ones, and return to the combers, leaving the weights off. Also take the weights off the lap and ribbon machines as fast as they stop." JEFFREYS.

(To be continued.)

The Cost, Construction and Equipment of Cotton Mills in India.

Comparisons are not always odious, but are frequently most valuable, and some facts and figures concerning the construction, cost and machinery equipment of modern East Indian cotton mills, afford an interesting basis of comparison for similar lines of work in this country, especially in the construction of Southern mills on coarse counts, where the character of the product more nearly approaches that produced in India.

The Indian Textile Journal publishes the following article on the subject, which was especially prepared for that most estimable journal, and we believe it will be read with interest.

***

In India, perhaps more than in any other country, has the first cost of cotton spinning mills been more variable when calculated at so much per spindle, even in mills of the same or almost the same size. Under ordinary circumstances, the larger the mill the less should be the original cost per spindle, but in the present article we propose only to refer to mills equipped with practically the same number of spindles.

After making due allowances for exchange values, the balance sheets of our local limited companies show material differences in the valuation of their machinery. Some have evidently cost about Rs. 38 (about $11.40) per spindle, Rs. 40 ($12) Rs. 45 ($13.50) and Rs. 50 ($15) so between the lowest and the highest, there is then a difference of, say, Rs. 10 ($3) per spindle. On a mill of 20,000 spindles the difference amounts to no less than Rs. 200,000 ($60,000), which, we must admit, is a very large sum of lost money for which no return can be obtained. The cause of this serious difference may be traced to one or more causes:

(1) To too high a price having been paid for the machinery;

(2) To a lot of money having been paid away in commission or unnecessary preliminary preparations;

(3) To the ordering of an excessive amount of preparation machinery;

(4) To expenditure in obtaining the best classes of machines; or

(5) To unnecessary decoration, ornamentation, or size of the buildings.

Referring to cause No. 1, the original promoters were to blame for carelessness; No. 2, to the apathy or want of firmness on the part of shareholders who permitted the annexation of money by a few which rightly belonged to the many, and should have been credited to the company. As regards No. 4, little can be said, as the best machinery generally gives the best production, costs less in working, and lasts longer; but as regards Nos. 3 and 5, we should like to enter into detail. Beginning with No. 5 first, it seems to us that money spent on anything about a mill building, except for soundness, rigidity, roominess, ventilation, and illumination, is money grossly wasted. A handsome structure is no doubt always desirable, but in these days of keenest competition money so spent is money thrown away. Plain substantial cotton mills, with simple arrangements, are always best; and if half a lakh of rupees or more is spent in ornamentation, it is culpably wasted. Looking round at the mills in Bombay it will be found that the plainest are the most profitable; we do not mean to say that this has much, if anything, to do with their success, but agents who have wisely economized in this respect are more likely to economize in the working of the concern, and hence their greater profitableness.

As to No. 4, much can be written and said, but we will confine our remarks within narrow but essential limits. In many concerns in India there is a large amount of preparation machinery which is not necessary, and on which the mill could have had the following savings:—(*a*) original cost; (*b*) interest on original cost; (*c*) expenditure on wear and tear; (*d*) depreciation; (*e*) working expenses; (*f*) floor space and less building; and (*g*) engine-power and coal consumption.

The cause of this can nearly in every case be traced to the equipment having been left in the hands of incompetent persons.

In the spinning of ordinary Indian yarns (coarse numbers) it is wrong to calculate from actual work, and arrive at the number of machines necessary for mills of different sizes. As a guide, therefore, we have made the necessary calculations, and have arrived at the following results from a certain basis of productions:

PRODUCTIONS PER HOUR AND PER 12 HOURS.

	lb.	lb.
Combined opener and scutcher	430	5,160
Single scutcher	210	2,520
R. F. Carding Engine	18	216
Drawing frame, per delivery	17	204
Slubbing, per spindle	1.6	19.2
Intermediate do.	.7	8.4
Roving do.	.24	2.88
	oz.	oz.
Ring frame do.	11/16	7 1/4

A mill of 20,000 spindles would thus produce per 12 hours—

$\frac{11}{16} \times 12 \times 20{,}000 = 9{,}062$ lbs.

Allowing 20 per cent. for waste in the process, we have then the production of the opener as—

$$\frac{9{,}062 \times 100}{80} = 12{,}330 \text{ lbs.}$$

The combined opener and scutcher produces 5,160 lbs., so that three machines are sufficient; the single scutcher produces 2,520 lbs., so that five machines would do, say, five breakers and five finishers; although the breakers could be dispensed with, we think, if the cotton was passed through a porcupine opener, then through a combined opener, and scutcher with pedal feed, regulator, and trunks, and then directly to the finishers. If dispensed with, the saving in this respect alone would be over £450 or Rs. 7,200 (about $2200). Fifty-eight carding engines producing 216 lbs. each would be ample, and so also would be deliveries drawing at 204 lbs.; 625 slubbing spindles at 19.2

lbs.; 1,430 intermediate spindles at 8.4 lbs.; and 4,170 roving spindles at 2 88 lbs.

The number of spindles, deliveries, etc., having been obtained, the next thing to determine is

THE LENGTH, SIZES AND GAUGES OF THE MACHINES,

as this exercises a most important factor in the first cost of machinery. A ring frame mill made up of 400 spindled frames will cost much less per spindle than the one equipped with frames of 200 or 300 spindles only; but on the other hand the limit of size can be easily overstepped, so that judgment and care are absolutely necessary in order to strike the happy medium.

Frames which are too long have many disadvantages—(*a*) they cannot be run at so great a speed; (*b*) in the case of stoppage for piecing-up, and there is a greater loss in production by more spindles being at rest; and (*c*) work-people prefer medium length machines to long ones, as they require less work and give off a greater production per spindle.

The scutchers and openers are generally made a fixed size, but the carding engine may either be 37 in., 38 in., 40 in. or 45 in. For Indian cotton the 38 in. or 40 in. cards are the best if the counts of the wire used are 80's to 90's for cylinder, 90's to 100's for doffer, and 90's to 100's for flats.

THE DRAWING FRAMES

may have either 6, 7, or 8 deliveries to each head, the best, perhaps, being 7, so that seven frames of 7 deliveries and two of six deliveries would do. The gauge of the spindles and deliveries are often arranged so that the following machinery standing in the same line may all be of the same length. The seven frames of 7 deliveries could be of 16 in. staff. and would thus stand in 35 7-12 feet, while the 6 deliveries would be of 18 in. staff, and would thus stand in almost the same length. The slubbing frames should have 88 spindles, and if so stand in the same length as the drawing, should be of 18-in. gauge. A 19-in. gauge would be better, but the frame would then occupy 37 ft. 10 in. of floor space.

Twelve intermediate frames would be required of 120 spindles each, and with 19 3-4-in. gauge, would stand in 35 ft. 11 in., making full bobbins 4 3-4 in. diameter.

There should be 26 roving frames of 160 spindles each, with a gauge of 20 in. or 20 1-2 in. The length of the frame with the former gauge would be about 36 ft. 4 in., and with the latter about 10 in. more; the diameter of the full bobbins being 3 1-2 in. and 3 5-8 in., respectively.

If twist yarn only is to be spun, then the gauge would either be 2 5 8 in. or 2 3-4 in. If we suppose half the frames to be of the former and half of the latter, then to bring them the same length, there will require to be 400 spindles, 2 5-8 in. gauge per frame, and 384 spindles to 2 3-4 in. gauge frame. Thus 25 frames of 400 spindles will be wanted and 26 frames of 384 spindles each. Summarized, the equipment is as follows:—

MACHINERY FOR A SPINNING MILL OF 20,000 SPINDLES.

3 Combined openers and scutchers.
5 Finishers.
3 Porcupine openers.
58 R. F. Carding Engines, 38 in. or 40 in. in wire.
7 Drawing Frames of 7 deliveries, 16 in. staff.
2 Drawing Frames of 6 deliveries, 18 in. staff.
7 Slubbing Frames, 88 spdls., 18 in. or 19 in. gauge.
12 Intermed. Frames, 120 spdls., 19¼ in. gauge.
26 Roving Frames, 160 spdls., 20¼ in. gauge.
25 Ring Frames, 2⅛ in. gauge, 400 spdls. 10,000
26 Ring Frames, 2⅛ in. gauge, 384 spdls. 9,384
19,384

In concluding this article we may add equipments for mills of 10,000 and 30,000 spindles, which may be useful for reference:—

EQUIPMENT FOR 10,000 SPINDLES.

2 Combined openers and scutchers.
3 Finishers.
2 Porcupine openers.
29 Revolving Flat Carding Engines.
3 Drawing Frames of 7 deliveries.
1 " Frame " 8 "
4 Slubbing Frames of 80 spindles.
6 Intermed. " 120 "
13 Roving " 160 "
13 Ring Frames, 400 spdls. 2⅛ in. gauge =5,200
13 Ring Frames, 370 spdls. 2⅛ in gauge =4,810
10,010

FOR MILL OF 30,000 SPINDLES.

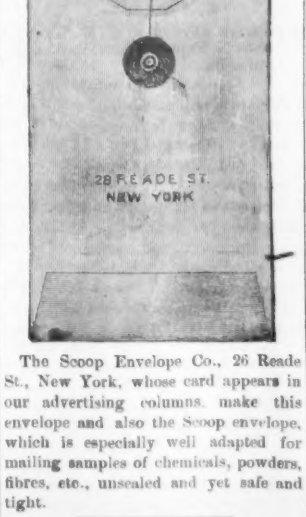
4 Porcupine Openers.
4 Combined Openers and Scutchers.
7 Finisher Scutchers.
87 Revolving Flat Carding Engines.
13 Drawing Frames of 7 deliveries each.
11 Slubbing " of 88 spindles.
10 " " 94 "
17 Intermed. " 127 "
39 Roving " 160 "
38 Ring Frames 2⅛ in. gauge, 400 spindles =15,200
39 Ring Frames 2⅛ in. gauge, 380 spindles =14,820
30,020

Popular Abroad and at Home.

The success in foreign countries of "the greatest improvement in cotton spinning since Arkwright's time" is equally as marked as in America. Mr. Benjamin F. Nichols, formerly treasurer of the Metallic Drawing Roll Co., Indian Orchard, Mass., the American company, but now of the English and Continental company, has recently completed a tour of a few of the leading cotton mills in Russia. In one week he sold patent Metallic Rolls for over 600 deliveries of drawing to take the place of the old fashioned leather covered rolls in old frames. Much of the new machinery for foreign cotton mills is being ordered with the patent metallic roll. Among the orders secured by Mr. Nichols was one from the Kremholm Cotton Manufacturing Corporation, at Narva, about 90 miles from St. Petersburg, which is the largest cotton mill in the world. It has 450,000 spindles and runs 24 hours a day seven days in the week. The cotton manufacturing industry is comparatively prosperous in Rusia, all the well managed mills being very profitable. They are mostly under the active management of competent Englishmen. The weather in Russia has been unprecedently mild.

The Tension Envelope.

For the safe mailing of pamphlets, catalogues, sample cards and other unsealed matter, the tension envelope here illustrated is a most complete success.



The Scoop Envelope Co., 26 Reade St., New York, whose card appears in our advertising columns, make this envelope and also the Scoop envelope, which is especially well adapted for mailing samples of chemicals, powders, fibres, etc., unsealed and yet safe and tight.

—The Robinson Mills at S. Windham, Me., have orders for several months ahead. They are running the carding and spinning rooms night and day, with two sets of help, and are rushing business.

Oil Instead of Coal.

The first steamer to cross the Atlantic burning only liquid fuel, was the British steamship Baku-Standard, a bulk oil carrier, which arrived a few days ago from Shields and Dartmouth. The trip, says the Boston Transcript, was an unusually trying one, the vessel having been caught in Arctic drift ice and detained so long that the passage required twenty-six days. The Baku-Standard sailed from Dartmouth on Jan. 20, with petroleum residuum as her only fuel. This residuum is a product of oil of little value and no known use unless the experiment of using it as fuel should prove successful.

The most important advantage discovered on the run was that perfect combustion was possible—an end never obtained when coal is used in the fire room. The process consists in forcing the fuel through the centre of a steam jet, which passes directly under the shell of the boilers, which are protected from the flames by a super-structure of brick. The heat is so intense that the bricks are changed to a white color, and the heat is then passed evenly over all parts of the boiler shells. The consumption was about twenty tons of the fuel every twenty-four hours, while in the same time thirty tons of bituminous coal are consumed. On this run the residuum was from Russian oil, but on the outward trip Pennsylvania oil fuel will be used.

Another great advantage besides economy in fuel was found in the necessity for fewer firemen and stokers, twelve men less than ever before making up the Baku-Standard's complement. In the fire room there were but four men needed, two boiler tenders and two greasers. The saving was not only in the wages and food of these men, but in the annoyance of shipping firemen and stokers, who are the most undesirable seafarers known to masters of steam vessels of the modern day.

The Baku-Standard was built by Sir William Armstrong, at Newcastle-on-Tyne, for A. Suet, of London, a large owner of this class of shipping. She registers 3705 gross tons, and is 330 feet long, 43 feet beam and 23 feet depth of hold. She carries over 1,200,000 gallons of petroleum in bulk, and trades to Russia as well as the United States.

Captain H. S. Browne, who commands the Baku-Standard, reports having been caught on the Aertic drift ice on Feb. 8, in latitude 47.40, longitude 47.20. After steaming through the ice for fourteen hours, he was obliged to turn the vessel about and retrace her course in a northeasterly direction. For three days the steamer was hove to, being unable to continue on her course with safety, owing to hurricanes, violent gales and terrible seas. She also passed numerous cone-shaped icebergs drifting toward the southward. When she arrived there was but ten gallons of fuel left, and a few more hours heavy weather would have left her in a helpless condition.

Artesian Wells for Water Supply.

The use of artesian wells as a means of a water supply where pure water is required, has become a recognized necessity. The Ray Artesian Well Co., of Clifford and Eddy Sts., Providence, R. I., are doing a large business in this line and have just completed a well for a large R. I. brewery, and have contracts on hand for a number of others, including one for Keily Bros., of the same city.

—Kangaroo cloth is a new novelty in cotton fabric, introduced by Clarence Whitman & Co.

The new goods have somewhat the appearance of crêpe, but are finer in texture and produced in plain colors and a large variety of popular shades.

—The report published in our February issue that Mr. T. M. Clark had resigned the superintendency of the Sawyer Woolen Mills is erroneous. Mr. Clark is still with the company, and has no idea of leaving them.

—We are informed that on and after Jan. 1st, 1894, the office and salesroom of the Walpole Dye & Chemical Co. is at Walpole, Mass.

ELLIOT CLOTH FOLDER AND MEASURER
For Cotton and Gingham Mills, Bleacheries, Print Works, Etc.
MANUFACTURED BY
ELLIOT & HALL,
54 1-2 Hermon St., Worcester, Mass. Send for Circular.

'SLASHENE' Size for Sizing Cotton Warps
Size for Sizing Woolen Warps
Size for Sizing Silk Warps

If you want a Beautiful Feel, Good Weaving, Good Appearance to Cloth, Saving in Harness, Warps Strengthened, Use "SLASHENE." Many instances can be cited where from 5000 to 8000 lbs. more of Yarn have been woven with the same number of Looms since using "SLASHENE."

MANUFACTURED BY
EASTWOOD & CO. Broadway, Fall River, Mass.

Cohoes Foundry and Machine Co.
BUILDERS OF
SLASHERS,
ELEVATORS,
WATER WHEEL COVERNORS, SHELL ROLLS.
General Foundry and Machine Work, Repairing, Etc.
COHOES, NEW YORK.

Caustic Soda as a Boiler Compound.

Besides its use in other departments of the mill, 98 per cent. concentrated powdered caustic soda is advocated for the prevention of scale in boilers. Besides possessing the quality of not injuring or destroying the boiler plates or fittings, a boiler compound to be really effective must accomplish two things: First, it must soften the water by rendering insoluble the lime, iron, magnesia, etc. which form the scale. Second, the resulting sediment must be prevented from sticking to the plates and tubes of the boiler, as these form scale.

The American agents for the Golden Fleece Alkali Works, the Welch, Holme & Clark Co., 383 West St., New York, inform us that their 98 per cent. extra fine concentrated powdered caustic soda has been used with marked success as a boiler compound by leading manufactories and steamship companies. They state that it dissolves instantly in water, and simply requires to be added daily to the feed water in the following proportions:

FOR EACH TON OF COAL BURNED.

Fairly good water,	1 lb.
Average hard "	1½ "
Very hard "	2 "

The blow-off tap should be frequently used, to remove the sediment formed by softening the water.

Besides its use as a boiler compound, 98 per cent. caustic soda is a very handy thing to have about, and engineers will find it valuable in cleaning up the engine room, for removing paint, scouring and cleaning, disinfecting purposes, washing out barrels, etc., and for making bar hard soap, this brand is specially recommended.

—The S. Blaisdell Jr. Co., incorporated 1893, is continuing the business at the office and in the same line as formerly carried on by Samuel Blaisdell Jr. & Co. The members of this corporation are C. M. Blaisdell, pres. and treas., G. A. Blaisdell, vice-pres., E. J. Carrigan, sec. The Messrs. Blaisdell have had many years experience as dealers in cotton and wool, and are making American long staple cotton a specialty. Many of the best spinners of fine yarns in the country are among the customers and life-long friends of Messrs. Blaisdell, and in starting this new corporation we find that their former acquaintances and patrons are very largely remaining with the new company. From the extremely pleasant business intercourse which has been our experience with the Messrs. Blaisdell, and from knowing that either as buyers or sellers they are highly regarded by those with whom they have transactions, we feel confident that with the new reorganization they are in better position than ever to give the highest satisfaction, either as sellers or buyers.

VERMONT SPOOL & BOBBIN CO.
Burlington, Vt.
12,000 Yds.
Mills at Essex Junction, Vt.

The Political Economy of Natural Law.

Messrs. Lee and Shepard have issued a new book by Henry Wood, author of "Ideal Suggestions," "God's Image in Man," "Edward Burton," etc., under the above title. Its purpose is to outline a political economy which is practical and natural rather than theoretical and artificial, being a study of inherent laws and principles. In 1887 this author issued a [volume entitled, "Natural Law in the Business World," which was well received and passed through several editions. The present book is not a revised edition, but substantially a new book of double the size.

The titles of a few of the twenty-four chapters will give some idea of its contents. Among them are, The Law of Co-operation, The Law of Competition, Combinations of Capital, Combinations of Labor, Profit Sharing, Socialism, Economic Legislation, Can Capital and Labor be Harmonized, The Distribution of Wealth, The Centralization of Business, Booms and Panics, Money and Coinage, Tariffs and Protection, Industrial Education, etc., etc.

Political Economy is interpreted from the standpoint of evolution and natural law. The idealism and optimism of this book strongly distinguish it from many of the pessimistic treatises of the present time.

Mr. Wood has the faculty of rendering this usually dry subject not only instructive but positively entertaining. He has given many years of careful study to the practical phases of social economies, in their relation to Natural Law, and each chapter is thoroughly original and telling in its special department.

[The Political Economy of Natural Law. By Henry Wood. Boston; Lee and Shepard $1.25.]

—Mr. H. S. Chadwick, Treas. of the Charlotte Machine Co., Charlotte, N. C., has been appointed by the Foster Machine Co., Westfield, Mass., their agent in the Southern States for the sale of cone winders and other textile machinery manufactured by them.

—The Sterling Dyeing & Finishing Co., Sterling, Conn., dyers and finishers of the "Sterling" fast black on cotton piece goods, yarns, tapes, knit goods, etc., report that their business showed an improvement during February. They are working with a full force and 10 hours per day. The Sterling company completed two new additions but recently, one of stone 126x115 feet, one story, which will be gradually filled with machinery for washing and finishing; the other is 80x50 feet two stories of brick, and is now fitted up with dyeing machinery. These new additions greatly increase the facilities of this company which are already very large. Mr. James E. Pike is agent.

Wm. Pickhardt & Kuttroff,

B. Anilin & Soda Fabrik Sp. P.

NEW YORK. BOSTON. CHICAGO.
PHILADELPHIA. PROVIDENCE.

COAL TAR DYES and EXTRACTS.

Alizarine Dyes a Specialty.

READ HOLLIDAY & SONS, LIMITED,
No. 7 Platt St., New York,

Manufacturers of **Acid Magenta,** (Patented.)

HEADQUARTERS FOR

Aniline Dyes, Aniline Oil, Aniline Salts, Arseniate of Soda, Chlorate of Potash, Yellow Prussiate " Chemicals, Etc, Indigo, Indigo Extract, Archill Liquor, Cudbear, Picric Acid, Zink Auxiliary,

WORKS: Huddersfield, Wakefield, ENGLAND, Rouen, FRANCE, Brooklyn, N. Y.

BRANCHES: BOSTON, 367 Atlantic Ave, PHILADELPHIA, 45 S. Front St.

ALEX. P. MENDE,
14 WATER ST., NEW YORK,
Manufacturer of Fast Colors and Black Dyes.

We call particular attention to our **ONE DIP FULLING BLUE FOR WOOL.** Sample sent on application.

JOHN J. KELLER & CO., 104 MURRAY STREET, NEW YORK.

Sole Agents for JOHN R. GEIGY & CO., Basle, Switzerland

Aniline Colors, Dyewood Extracts, Etc.

Cotton Printing Specialties, Fast One-Dip Cotton Colors, Fast Wool Colors.

134 Chestnut Street, Philadelphia. Branch Houses: 153 Milk Street, Boston.

Calleine Blue
Calleine Black

NEW ONE DIP DYES. Faster than Alizarine Colors.

Produced at One-half the Cost.

F. E. ATTEAUX & CO., 172-178 PURCHASE ST., BOSTON.

E. SEHLBACH & CO.,
77 WILLIAM ST., NEW YORK.
16 Hamilton St. Boston. 11 North Front St. Phila. 161 Kenzie St. Chicago
Sole Importers of ALIZARINE AND ANILINE COLORS
Manufactured by
FARBENFABRIKEN vormals FRIEDR. BAYER & Co., Elberfeld and Barmen, Germany.
Sole agents of the **Hudson River Aniline Color Works,** ALBANY, N. Y.

W. W. HANNA,
Buffalo Aniline Colors.
50 and 52 No. Front Street, PHILADELPHIA, PENN.

ANCHOR COLOR MANUF'G CO.
Importers and Manufacturers of
Alizarine and Aniline Colors, Dyestuffs, &c.
Office and Factory. 464 & 466 CHERRY ST., NEW YORK.

INNIS & CO.,
Manufacturers, Importers & Dealers in
DYE WOODS, DYE STUFFS AND CHEMICALS.
EXTRACTS OF LOGWOOD. FUSTIC.
Poughkeepsie Dye Wood Works, Established 1816.
Stores: 120 William St., New York. 39 Strawberry St., Phila. 161 Kinzie St., Chicago.

JOHN M. SHARPLESS & CO.,
22 N. Front St., PHILADELPHIA, PA.
—MANUFACTURERS OF—
DYEWOODS AND EXTRACTS. LOGWOOD. FUSTIC. BARK CUTCH.

F. G. PAULY, Pres. I. J. MERRITT, Vice Pres. I. J. MERRITT, Jr., Treas

Harway Dyewood & Extract Manufacturing Co.,
MANUFACTURERS OF
DYEWOODS, DYEWOOD EXTRACTS and LIQUORS, HAEMATINE
ONE DIP BLACK DYE, CUTCH EXTRACT.
Importers of Indigo, Cutch, Madder, Chemicals, &c.
WORKS: FLUSHING, L. I. 184 Front St., NEW YORK.

STAMFORD M'F'G CO.,
157 MAIDEN LANE, NEW YORK.
MANUFACTURERS OF
DYEWOODS and DYEWOOD EXTRACTS,
LIQUORS AND FLAVINES.
Importers of Chemicals and Dyestuffs.

ALAZARINE AND COAL TAR **DYES**
IMPORTED BY
WM. J. MATHESON & CO., Limited, 178 Front Street, New York.
BRANCH HOUSES: Boston, 492-496 Atlantic Ave. Philadelphia, 140 So. Delaware Ave. Providence, 15 S. Water Street.
Works, L. I. CITY and SO. BROOKLYN, N. Y.

COLORS-DYEING.

This department is under the supervision of **Mr. Edward Prag,** and communications intended for it should be addressed to him either at our

Philadelphia Office, 240 Chestnut Street,

or

Laboratory, 2220 Lambert Street, Phila.

Experimental Dye Sheet Recipes for February.

Those manufacturers or dyers among our subscribers who have not received the Dyed Sample Sheet and desire it, will please notify us.

No. 97.

Black on Wool.

DYED WITH HAEMATINE 51°, HARWAY DYEWOOD AND EXTRACT MANUFACTURING CO., 184 FRONT STREET, NEW YORK.

(100 lbs. of wool.)

Prepare a mordanting bath containing

3% Bichromate of Potash,
2% Lactic Acid.

Enter wool and boil for one hour, then lift and wash. Prepare a second bath containing.

18% Haematine 51°

Enter wool at 160° F. raise to a boil and boil 1 1-2 hours, then lift, wash and dry.

We did not use any fustic in this recipe for the purpose of showing the full strength of the Haematine. We also draw attention to the fact that instead of tartar, Lactic acid has been used as fixing agent.

Editorial remarks regarding the new acid will be found in another column. Lactic acid is manufactured by the Avery Lactart Co., 169 Devonshire Street, Boston, Mass.

No. 98.

Medium Dark Reddish Brown on Wool.

DYED WITH CHROME BROWN RO, SCHULZE-BERGE & KOECHL, 79 MURRAY STREET, NEW YORK.

(100 lbs. of wool.)

Prepare a bath containing.

4% Chrome Brown RO,
4% Sulphuric Acid.
10% Glauber's Salt.

Enter yarn at 160° F. raise to a boil and keep at a slow boil for one hour. Then add 3% of bichromate of potash, and boil again for one hour. Lift wash and dry.

This brown is of good fastness to light and washing.

No. 99.

Dark Reddish Brown on Loose Wool.

DYED WITH CHROME BROWN RO, SCHULZE-BERGE & KOECHL, 79 MURRAY STREET, NEW YORK.

(100 lbs. of loose wool.)

Use 6% of Chrome Brown RO, and dye out in the same way as Recipe 98.

No. 100.

Bright Greenish Yellow on Cotton.

DYED WITH AURAMINE G., A KLIPSTEIN, 122 PEARL STREET, NEW YORK.

(100 lbs. of Cotton.)

Prepare a mordanting bath containing,

3% Tannin.

Enter yarn and leave in the bath 3 to 4 hours, or leave yarn in bath over night.

Then prepare a bath containing,

2% Tartar Emetic.

Enter yarn and work 30 minutes, then lift and wash.

Prepare a fresh bath containing,

1% Auramine G.

Enter yarn at 60° F. raise slowly to 125° F. and turn at this heat to shade.

The dyestuff should not be dissolved at a greater heat than 175° F. Auramine G. is very much brighter color than Auramine O. In combination with Fast Green Crystal O, very pretty yellowish greens are obtained.

No. 101.

Yellowish Orange on Cotton.

DYED WITH COTTON ORANGE G., WM. PICKHARDT & KUTTROFF, 98 LIBERTY STREET; NEW YORK.

(100 lbs. of Cotton.)

Prepare a bath containing,

1½% Cotton Orange G.
20 % Common Salt.
2 % Fankhausine.

Enter yarn at 130° F. raise slowly to a boil and boil slowly for one hour.

When Fankhausine is used in the bath, the cotton need not to be boiled out and less quantity of salt is needed.

No. 102.

Orange on loose Cotton.

DYED WITH COTTON ORANGE R., WM. PICKHARDT & KUTTROFF, 98 LIBERTY STREET, NEW YORK.

(100 lbs. of Cotton.)

Use 1 1-2 per cent. of Cotton Orange R. and dye out in the same way as recipe No. 101.

No. 103.

Dark Grey on Cotton Flannel.

DYED WITH BENZO FAST GREY, E. SEHLBACH & CO., 77 WILLIAMS STREET, NEW YORK.

(100 lbs. of flannel.)

Prepare a bath containing,

5% Benzo Fast Grey,
2% Sal Soda,
25% Common Salt.

Enter flannel at 150° F. run four ends, raise to a boil and boil for one hour. Lift wash and dry.

This grey is very appopriate for corset cloth as it is very fast to prespiration.

No. 104.

Grey on Cotton.

DYED WITH NIGRAMINE, BEACH & CO., STATE STREET, HARTFORD, CONN.

(100 lbs. of Cotton.)

Prepare a mordanting bath containing

5% Tannin.

Enter yarn and leave over night.

Then prepare a fresh bath containing,

2% Tartar Emetic.

Work yarn for 30-45 miuutes, and enter without washing into a bath containing.

3% Nigramine.

Enter the cotton at 40° F. and raise heat slowly to 180-190° F. and at this heat turn to shade until the bath is fully exhausted.

No. 105.

Grey on Cotton.

DYED WITH NIGROSINE, W. W. HANNA, 50-52 N. FRONT STREET, PHILADELPHIA, PA.

(100 lbs. of Cotton.)

Prepare a bath containing,

2% of Nigrosine
5% Alum,
10% Glauber's Salt.

Enter yarn at 50° F. raise heat to 145° F. keep at this heat for 30 minutes. Lift wring and dry.

No. 106.

Black on Cotton.

DYED WITH DIAMINE BLACK BH., WM. J. MATHESON & CO., 178 FRONT STREET, NEW YORK.

(100 lbs. of cotton.)

Prepare a bath containing,

3½% Diamine Black BH.,
15% Glauber's Salt.

Enter cotton at 160° F. raise to a boil and boil for one hour. Lift cotton and rinse and enter into a diazotizing bath prepared as follows.

Dissolve 3 per cent. nitrite of soda in about 2 gallons of water and to this add 10 per cent. of muriatic acid, diluted with 2 1-2 gallons of water. In this bath leave the yarn a few minutes, then lift and rinse in cold water, slightly acidulated with muriatic acid.

Then enter the cotton into a developing bath prepared as follows. Dissolve 1 1-2 per cent. developer No. 7 in about 2 gallons of cold water, add this solution to the vat of cold water. Enter yarn and run for a few minutes in this bath. Then lift, rinse and wring and dry.

No. 107.

Medium Dark Blue on Silk.

DYED WITH LYONS BLUE CP, SYKES & STREET, 85 WATER STREET, NEW YORK.

(25 lbs. of silk.)

Prepare an old boiled off soap liquor, broken with a little sulphuric acid and then add,

2 ounces Lyons Blue CP.

Enter silk at 120 F. raise the temperature to a boil and work at this heat for 40 minutes.

Then lift and revive with sulphuric acid, wash and dry.

No. 108.

Brown on Cotton.

DYED WITH CHICAGO BROWN G., JOHN J. KELLER & CO., 104 MURRAY STREET, NEW YORK.

(100 lbs. of cotton).

Prepare a bath containing,

3% Chicago Brown G,
15% Common Salt,
2% Fankhausine,

Enter yarn at 140° F. raise to a boil and boil for one full hour. Lift wash and dry.

Two New Cheap and Good Blacks for Cotton.

Shortly before we went to press, we were informed by Messrs. Wm. J. Matheson & Co., 178 Front Street, New York, that they have two new cotton blacks, which they will place at once upon the market.

The new products are called, Diamine-Jet Black O O patented, and Oxy-Diamine-Black N, patented.

Diamine-Jet black O O, it is stated will dye cotton in a single bath deep black of fine shades, of good fastness and at low cost.

Chrome Brown R O.

This is the latest discovery of the famous European firm, Farbwerke vorm: Meister Lucius and Bruening, Hoechst a/M., and introduced in our own market by their sole agents Messrs. Schulze-Berge & Koechl, 79 Murray Street, New York.

This new wool brown belongs to the class of the so called "after chroming" colors.

The "after chroming" colors seem of late to have become quite popular with the dyers; the colors have the advantage of being faster to light and alkalies, than when dyed in the ordinary way. This "after chroming" process also saves considerable labor, as the whole process is done in one bath.

This new chrome Brown R O is dyed first like all acid browns, with sulphuric acid and Glauber's salt, and after the yarn has been in the bath for one hour at the boil, 3 per cent. bichromate of potash is added and the brown then developed by boiling 1 to 1 1-2 hours longer. 4 to 6 per cent. Chrome Brown R O, produces very rich dark reddish browns. For practical experiments see "Experimental Dye Sheet."

SCHULZE-BERGE & KOECHL,
Successors to Schulze-Berge, Koechl & Movius,
79 MURRAY ST., NEW YORK.
Sole Agents for the **ANILINE COLORS AND ALIZARINES**
Made by FARBWERKE, formerly MEISTER, LUCIUS & BRUENING, HOECHST a/M.
FAST COLORS for Wool, Yarn and Piece-Goods Dyeing, and Calico Printing.
Branch Offices: 138 Milk St., BOSTON, 39 N. Front St., PHILADELPHIA, Pa.

Sykes & Street,
SOLE U. S. AGENTS FOR
St. Denis Dyestuff & Ch. Co.,
PARIS, FRANCE,
ANILINE COLORS, OIL, SALT, ARCHIL, CUDBEAR, &c.
COEZ, LANGLOIS & CO., Havre, France; Dyewood Extracts, &c.
SADLER & CO., England; Alizarine, Oxalic Acid, &c.
85 WATER ST., NEW YORK.
85 India St., Boston. 43 N. Front St., Philadelphia. R. R. Street & Co., Chicago, Western Agents.

EDWARD HILL'S SON & CO.,
25 and 27 CEDAR STREET, NEW YORK,
CUTCH, OXALIC ACID, CAUSTIC POTASH,
Blue Vitriol, Carb. Potash,
Chlorate of Potash, Caustic Soda, Arsenic, Shellac,
Ceylon and Cochin Cocoanut Oil.

WELCH, HOLME & CLARK CO.,
383 WEST STREET, NEW YORK,
Importers of Celebrated "Golden Fleece" Extra Refined Concentrated 98 per cent.

Powdered Caustic Soda.

MORO PHILLIPS CHEMICAL CO., 131 So. Third St., PHILADELPHIA.
Acids, Clauber Salts, Aqua Ammonia.

COPPERAS in car loads or less; in barrels or bulk.
The S. P. WETHERILL CO.,
925 Chestnut St., - Philadelphia, PA.

ZELLNER BROTHERS,
213-215 S. FRONT ST., - PHILADELPHIA, PA.
A PERFECT COTTON SOFTENER
THE PERFECT SAVONITE TRADE MARK REGISTERED COTTON SOFTENER.
KALONITE
A PERFECT WOOL SCOURER
Prices and further information furnished on application.

CHAS. A. JOHNSON & CO.,
Successors to J. C. Bloomfield & Co.
Dealers in
Dyestuffs & Textile Trade Supplies.
Detergent for Bleaching, a substitute for soda ash, a specialty.
14 Dey Street, New York.
29 Weybosset St., Providence, R. I.

Roundabout Notes.

For the Textile Mfg. World.

DYEING, PRINTING, BLEACHING AND FINISHING.

When a lecturer devotes two hours to the consideration of soap as used in the textile industry it is to be presumed that he is a specialist and that his conclusions are worth recording. Dr. Lewkowitsch says that olive oil, even if of inferior quality, is the best possible material for making soap for the treatment of woolen goods. This product is perfectly neutral and any soap used for scouring, milling and fulling *must* be quite free from excess of alkali. It must also be well saponified, not containing any unsaponified fat, resin, mineral oil, or other matter. Lewhowitsch claims that imperfections in soap, materially affect both the fibre and the color so that this is a most important matter to the dyer. Luckily he believes that a perfect soap is by no means a difficult thing to produce.

***

The head of the well known firm of Read Holliday & Sons remarks that in one way the dyer's lot is not as happy as of old. Whereas in the past he had some thirty or forty dye-stuffs, to-day he has several thousand, so that he cannot fall back on his old plea "This is the only dye; if this won't do I have nothing else." He must read the technical journals and keep himself acquainted with new dyes and new methods, or take a back seat. Over a hundred new coal-tar colors were placed on the market last year and many of them are most important. It is not a trade either for the lazy or the unintelligent.

***

Few dyers even give a thought to the tremendous force of human intelligence that is constantly exerting itself to add new triumphs to the dyer's art. A good example of the elaborate skill required in the manufacture of anilines is afforded by some details of the making of the Titan colors. The process is a complicated one at every stage, and there are seven stages between the raw material and the color room. To make a single color of the group, the products of thirty-four departments of the works are necessary.

Marron Corinthe, one of the chestnut tints so fashionable in Paris at present, is, according to the *Farb. Must. Zeit.* obtainable to great advantage on woolen by the following recipe:

For 100 lbs. goods. A light blue is given in the indigo vat and the woolen is carefully washed and dyed in a bath made with

½ lb. Diamine Red F.,
1 " Anthracene Yellow C.,
3 " Bisulphate of Soda,
5 " Acetic of Soda.

Enter at 40° C and bring slowly to a boil. It is usually necessary in order to exhaust the bath, to add another 3 lbs. of bisulphate and give a final boil. The woolen is next washed and re-entered into the bath to which 3 lbs. of fluoride of chrome has been added. Half an hour's boiling completes the operation. The shade obtained is fast to light, washing and acids.

***

The *Farber Zeitung* recommends sulphurous acid in solution as a medium for reducing shades on wool that come up too dark. This will act very well with the vegetable colors, particularly logwood blues and blacks, but it is not a universal remedy. Used with browns and olives it not only strips them in a measure but it brings about an alteration of shades.

***

Koechlin's discovery that peroxide of hydrogen is capable of rendering insoluble gums soluble, has been barely announced in the technical press already, but the details as just published by the Mulhouse Society are extremely interesting in themselves. A mixture of 250 grams of powdered gum, 1000 grams of water and 50 c. c. of peroxide, is heated for two hours at 80° C, when the solution is completed. Too much peroxide liquifies the gum completely.

The solution turns woolen yellow on steaming, evidently because it (the wool) looses its oxygen, and to remedy this, a little bisulphite should be added to it. Even then the wool takes a yellow tinge, the more so in the perfect steaming of the Mather and Platt machine, but this is remedied by a final passage through a bisulphite of soda bath.

The insoluble gums contain a soluble part, soluble in water, and this portion is without doubt more completely oxidized than the other. In this respect they resemble a number of vegetable products which are composed of two or more bodies of varying degree of oxidation, for instance, madder contains alizarine and purpurin, logwood hematin and an insoluble resin, Jesuit's bark quinine and chinchona, etc.

In cocheneal Schutzenberger has found two matters differing in this respect; one gives carmine with aluminum and the other ponceau with tin.

***

Another practical use of this discovery is the making of a good thickener from linseed, 500 grams linseed, 1000 grams water, 250 grams acetic acid, and 8 to 10 grams peroxide are given an hours boiling and then rinsed. The peroxide as before must not be in excess or complete liquefaction will occur. The seeds thus treated are dried and the oil can be extracted from them in the ordinary way.

***

Prud 'homme has hit upon a new method of fixing dinitroresorcine on cotton by means of steaming. The mordant used is yellow prussiate and a fine green of very considerable intensity is obtained.

***

Kalle's "Indigo Salt" is attracting universal attention at present and it seems to be acknowledged on all hands that it is the most perfect indigo substitute as yet invented. A German contemporary says that for heavy patterns it cannot compete with the vat, but we have seen two patterns lately which show it as an admirable indigo blue in printing.

The first is a red on a deep blue and was done by printing on a tannin resist for the red, and printing on a color containing 250 grams per liter Indigo Salt. The cloth was dried and passed through soda lye (32 deg. Tw.) to develop the blue, washed, passed through an acid bath, and dyed in a bath made with (for 100 lbs. cloth) 14 1-2 oz. safranine A. G. extra and 9 1-2 oz. Auramine II., then washed and dried.

The other is a light blue obtained for the same quantity of cloth with a printing color made with 50 oz. Indigo Salt and three gals. of starch thickening. The cloth was passed through soda lye at the boil in the same way to develop the color. Both shades will be very useful to the printer.

Two New Cheap Blacks for Cotton.

The following clause is part of article with same head on Page 16, from which it became separated by mistake.

It is claimed, a full blue black is produced with 4 to 4 1-2 % of dye stuff with the addition of 5 % of soda crystals and 15 % of Glauber salt, or 2 % of Turkey red oil and 20 % of Glauber salt at the boil for one hour; by shading with some diamine fast yellow A, a jet black is produced.

To obtain blacks fast to milling, the cotton is entered in a second bath containing 4 % bichromate of potash and boiled in this bath for 10 minutes. The fastness to light is claimed to be excellent.

This new color will dye also, wool, silk, and silk and cotton mixed.

Oxy-Diamine-Black N also dyes cotton a deep black, with soda and Glauber salt; its fastness to acid should be very good, it has a great tinctoral power and is well adapted for dyeing jute and linen.

The firm is also bringing out a new Diamine Brown for cotton.

Lactic Acid vs. Tartar.

Lactic acid has been years ago quoted by European authors as a good fixing agent, and a substitute for tartar, but in this country it has scarcely been used, in fact, we believe it has not been used at all on account of its high price.

The Avery Lactart Co., 169 Devonshire street, Boston, and 181 William St. New York, through the invention of an easier method of manufacturing the acid have been enabled to reduce the cost price considerably and sell the same now about 20 % cheaper then tartar.

This will prove of great benefit to the manufacturer, as lactic acid is now not alone cheaper than tartar, but has also other advantages over tartar, such as saving of chrome and to some extent dyestuff.

Lactic acid liberates more chromic acid from bichromate of potash than tartar, thus a smaller amount of chrome will be needed for the mordanting bath; with the acid a much deeper bottom is obtained on the wool, and not quite as much dyestuff will be needed.

Experiments in our laboratory showed as follows: Experiment No. 1, wool mordanted with 3 % of bichromate of potash and 2 % of tartar; Sample No. 2, wool mordanted with 3 % of bicromate of potash and 2 % of lactic acid; Sample No. 2 was nearly two shades deeper then Sample No. 1.

Experiment No. 2: wool mordanted with 3 % of bichromate of potash and 2 % of tartar. Sample No. 2, wool mordanted with 3 % of bicromate of potash and 1 1-2 % of lactic acid, Sample No. 2 showed as deep a bottom as Sample No. 1. Experiments made with wool mordanted with chrome and lactic acid and then dyed out in logwood, produced very clear dark blues and 3/4 % less extract was needed than on wool mordanted with chrome and tartar. The wool of Sample No. 1, displayed on "Experimental Dye Sheet" of this month has been mordanted with chrome and lactic acid. In April we will show some comparative test, so that the effect can be plainly seen.

Lactic acid should be of great advantage in alizarine dyeing, but as we have made no experiments as yet with alizarine dyes, we will abstain from giving our opinion until our next issue.

For prices and sample, write to the above given addresses.

Aniline Black for Cotton Hosiery.

PROVIDEECE, R. I., Feb. 15, 1894.

Editor of Dye Department, Philadelphia, Pa.

Dear Sir: In the January TEXTILE WORLD, under the head of "Roundabout Notes" page 11, is a process described for aniline black on wool. It is claimed that it is equally applicable for cotton.

Would it be suitable for cotton hosiery? Could you give me the proportions of ferric chloride used? Is the ferric chloride used as a salt or a solution?

Hoping you will kindly favor us with the information.

I am, yours respectfully,
GERALD COOPER.

The process described in our January issue, on page 11, is a patented process; patented by a Mr. Amende, of New York.

We have personally made no experiments with the new process in our laboratory, consequently we are unable to state if the process is applicable for cotton hosiery, nor can we give you the proportions of ferric chloride used. We may in the near future make experiments with the new process and we will publish the results.

In another column we publish a report from a foreign journal, that will partially give you the desired information.—ED.

Can Fill Orders Promptly.

Although the main manufacturing building and two warehouses of Messrs. W. J. Matheson Co.'s works at Long Island City were burned on Feb. 24th, the boiler house, two warehouses, laboratory and office on the same property were saved, together with sufficient stock to execute all orders until they can rebuild, so that their customers need have no hesitation to entrust to them any orders which need prompt attention.

Diamine Black BH, (Patented.)

This is a new color, belonging to the series of the diamine colors.

The diamine colors are manufactured by Messrs. Leopold Cassella & Co., Frankfort a/M, and sold in United States and Canada by Messrs. Wm. J. Matheson & Co., 178 Front Street, New York.

The diamine color's advantages are ready solubility, good fastness to light, washing and acids.

The dye process of Diamine Black BH is the same as that of the other diamine colors. To the dye bath is added 15 per cent. Glauber's salt, and after the cotton has been in the boiling bath for one hour, it is lifted and rinsed in cold water, and then entered into a diazotizing bath, consisting of a solution of nitrite of soda and muriatic acid; after 4 to 5 minutes the yarn is lifted from the bath and rinsed in a cold water bath, weakly acidulated with muriatic acid. The yarn is then entered into the developing bath.

For practical experiment and further instruction see "Experimental Dye Sheet" and recipes.

3 ounces of Diamine Black BH produces a pretty steel grey; 1 1-2 per cent. a medium blue, indigo shade; 3 1-2 per cent. a dark blue. 3 1-2 per cent. diazotized and developed with developer No. 7 and topped with New Methylene Blue G G, produces a jet black.

Fastness of Some Colors to Light and Air

From Foreign Sources.

The colors which are given below, were exposed to the light and air between May and July.

Alizarine Yellow A and C (both colors are not related to the regular alizarine colors) were dyed on chrome mordant. Color faded very quickly.

Gallamine Blue, dyed on chrome mordant. Faded very little.

Congo Brown R and G. Cotton dyed with addition of salt, showed after one week, loss of color; after two months little color was left. On wool the results were much better, two months of exposure showed very little loss of color.

Erika B and G dyed on cotton with addition of salt, had lost after two months all color. On wool they proved to be fast to light and air.

Diamine Red B, dyed on cotton in a soap bath, lost after one month all color.

Chromotropes, all shades proved to be perfectly fast to light and air.

Acid Red was perfectly fast to light and air.

Dyeing Underwear.

In the knit goods department will be found an interesting article on the machine dyeing of underwear. Although the article is signed "Beginner," we happen to knew that our correspondent is no novice in the business.

C. BISCHOFF & CO.,
80 Front St., New York. Branches, 110 Walnut St., Phila. 104 Broad St., Boston.
Aniline and Alizarine Colors, Dyestuffs, Chemicals,
ANILINE OILS and SALTS.
LATEST SPECIALITIES:
Cresylblue, 6B pat'd. } For Cotton: absolutely fast to Sunlight. } Thio Vesuvine, BB. } One Dip
" BB " } " Brown, BB. }
" BR " } " Yellow, B. } Cotton Colors
Cresylviolet " " Orange, G.
Naphtazine Blue pat'd—a fast acid Navy Blue for Wool.
Sole Agents for the U. S. and Canada of
Mommers' Patented Process of Cop Dyeing.
CORRESPONDENCE SOLICITED.

A. B. FRENZEL, M. I., Mech. E.,
Consulting and Mechanical Engineer
Drying "in Vacuno" Powders, Liquids and Solids.
31 & 33 Broadway, NEW YORK.

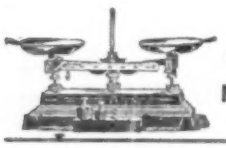
PH. H. KARCHER & CO.,
Importers and Commission Merchants of
Dye Stuffs, Extracts, Chemicals, Etc.
14 Cedar St., - - NEW YORK.

Could Commercial Co., Successors to HENRY A. GOULD & CO. Established 1861.
Importers and Jobbers of Indigo, Cutch, Anilines; Original Makers of Black Dye, Cutch Substitute.
35 Hartford St., Boston. 78 William St., New York.

JONATHAN HORSFALL,
Anilines and Dye Stuffs,
216 CHESTNUT ST., PHILADELPHIA, PA.

J. JAECK BROS., 69-71 WYTHE AVE., BROOKLYN, N. Y.
Extracts of Indigo, Indigo Carmine, Indigotine, Refined Indigo, Dressing, Softening, Bichloride of Tin, Bisulphide of Soda.

BEACH & COMPANY,
Hartford, Conn., and 372 & 374 Atlantic Ave., Boston, Mass.
Proprietors GROVE WORKS DYEWOOD MILLS.
Agents British Alizarine Co., Brooks, Simpson & Spiller, Anilines, Edward Mucklow's Dyeing Extracts, J. R. G. Cochineal, Etc.



Established in 1840.
HENRY TROEMNER,
710 Market St., Philadelphia.
MAKER OF
FINE SCALES and WEIGHTS,
for Woolen & Cotton Mills, Dye Works etc.
Price List on Application

Muddy water is good enough for Muddy Colors.

CLEAR COLORS
REQUIRE
CLEAR WATER

Which is best secured in any quantities desired, by using the

MOORE FILTER

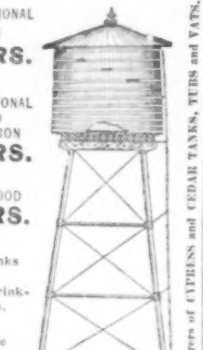
Water for Dyeing, Bleaching or Finishing, ought to be as clear, bright and sparkling as for drinking.
Cloudy, dead or inferior colors must naturally result from roily water.
Slow sales, low prices, and increased claims result from poor dyeing.
Don't blame the dyer but

USE THE
Moore Filter.
IT IS A
DIVIDEND EARNER

Correspondence solicited.
MOORE FILTER CO.
HOLYOKE, MASS.

TANKS, TUBS, TOWERS.

PATENT SECTIONAL ALL IRON TOWERS.
PATENT SECTIONAL COMBINED WOOD AND IRON TOWERS.
PLAIN ALL WOOD TOWERS.



Elevated Tanks for Automatic Sprinkling Plants.
Mfrs. of the Tecktonius, also the Scott Patent Lug or Band Fasteners.
Write for Illustrated Catalogue.

Manufacturers of CYPRESS and CEDAR TANKS, TUBS and VATS.

W. E. CALDWELL CO.,
218 and 220 Floyd Street,
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THE J. J. RYDER CO.
DESIGNERS ENGRAVERS PRINTERS
FINE COMMERCIAL PRINTERS.
Photo Engraving in all its Branches.
Specialists in fine Machinery and general Wood Engraving, Portraits, Buildings, etc. Artistic designs in Letter and Bill Heads, Business Cards, Display Lettering for advertising purposes, etc. Best work. Lowest prices. Electrotyping a specialty.
210 Westminster Street, Providence, R. I.

THE SCOOP ENVELOPE
Patented February 13th, 1894,
For Mailing Samples
Of dyes, chemicals, fibres, etc.
Samples, Prices, etc., on application to
SCOOP ENVELOPE CO., 26 Reade Street, New York City.
Also manufacturers of the Tension Envelope, which is so favorably known throughout the country for mailing samples, catalogues, etc.

Brilliant Cyanine Blue G Paste.

Continued from February.

II.

When it is desired to use Brilliant Cyanine Blue G Paste in combination with other Alizarine colors or colors dyeing on a chrome mordant, it is of course, necessary to increase the amounts of Bichromate of potash, etc. In such a case the other dyestuff is dyed on with Glauber salt and acetic acid in the dyebath, according to the method usually employed for such dyestuff. When the dyebath is at a thorough boil, the Brilliant Cyanine Blue G is added. It is not necessary to cool down to do this. One can match to shade by additions at the boil. If, for any reason the one bath method is preferred, dye with Glauber salt and Acetic acid, and subsequently add four per cent. fluoride of chrome. Even the lightest shades obtained by this method are equally as fast to light as those obtained with any alizarine color. They surpass any other alizarine color in clearness and brightness, especially in looking over same. Brilliant Cyanine Blue G paste produces greenish shades. For shading, the other Alizarine Cyanines are used in combination. Brilliant Cyanine Blue G is well adapted for slubbing Melange (Vigoureux) printing.

SUMMARY

of the properties of Brilliant Cyanine Blue G paste.

Fastness to tight: As fast to light as any alizarine color.

Fastness to milling: Does not produce any effect whatever, and does not bleed into wool or cotton when milled.

Fastness to rubbing: Does not rub off, either wet or dry.

Fastness to steaming: Does not bleed, nor is the shade altered.

Ammonia, soda, lye, freshly slacked lime, 10 per cent. solution sulphuric acid, acetic acid, are without effect on goods dyed with Brilliant Cyanine Blue G Paste.

Chlore, concentrated muriatic acid, turn the shade more greenish.

Nitric acid produces a spot which is first green and afterwards a reddish yellow.

Cotton selvages remain absolutely white in the dye bath and in milling.

Artificial Light. Brilliant Cyanine Blue G has a remarkably beautiful shade of a very full and greenish tone, which does not alter its appearance in artificial light (as is known, most colors dyeing on a chrome mordant appear somewhat redder and rather duller in artificial light).

ADDITIONAL INFORMATION FOR COTTON.

Brilliant Cyanine Blue G is not very fast to chlore; for ordinary aniline and alizarine dyes this is a disadvantage, but not so for the present product, as the white discharge obtainable is pretty good, and chloring is not absolutely necessary. If a good white is wanted, condensed water should be used for the dyeing. If the cloth is chrome padded, chrome printed, discharged, and finally dyed just under the boiling point in condensed water and a little acetic acid, the color bleeds less into the white than any other blue dyeing on a chrome padded mordant. Should the patterns thus worked not produce a sufficient white, then steaming improves it, and on subjecting the pattern to soaping, the white is still more improved, but in both operations the shade turns greener, which may not be objected to.

It is faster to light than all alizarine blues known. Oiled cloth, and steaming with pressure, produce the best results.

The printing paste can be preserved for any length of time, which cannot be done with alizarine blues, which would soon be spoiled. Soap baths used for Brilliant Cyanine Blue G can again be worked in with parts already printed and consisting of several colors, as the soap lather does not dye or dull the shades or bleed into the white.

Alizarine red prints improve in intensity on being passed through a soap bath wherein Brilliant Cyanine Blues have been soaped, and thus this soap can be used for more than one purpose.

Goods dyed with Brilliant Cynanine Blue G Paste on being dotted with concentrated nitric acid give greenish yellow spots very similar to those obtained on indigo by the same test.

IMPROVED RECIPE

for Brilliant Cyanine Blue G Paste on cotton cloth:

Pad with chrome (for the medium blue cotton), print with chrome (for the dark blue stripes), discharge now and finally dye just under the boiling point in condensed water with an addition of some acetic acid.

Directions for printing:

50 parts Brilliant Cyanine Blue G
920 " Acidulated Starch Tragacanth Thickening.
30 parts Acetate of Chrome 32° Tw.

Print on oiled cotton cloth, steam for an hour at 7 1/2 lbs. pressure, chalk and soap.

Silk mordanted with chrome is dyed in the same manner as wool. It can also be dyed on a chloride of chrome mordant, and the resulting shades are fast to water and soap.

E. E.

Clear Water for Dye House and Bleachery.

When we consider that the general effect of roily or impure water must inevitably lead to producing poor and indistinct colors, we might say muddy looking goods, we cannot wonder that every fine paper mill regards as a matter of highest importance the purification of its water supply.

In textile mills, where the goods produced are worth many times the price per pound of ordinary paper, and where any defect in color, or dingy appearance of cloth, results in losing orders, or having a large percentage of the profit taken, either by claims or reduced price to secure orders, it is surprising that so little attention, comparatively, is given to the subject of filtration.

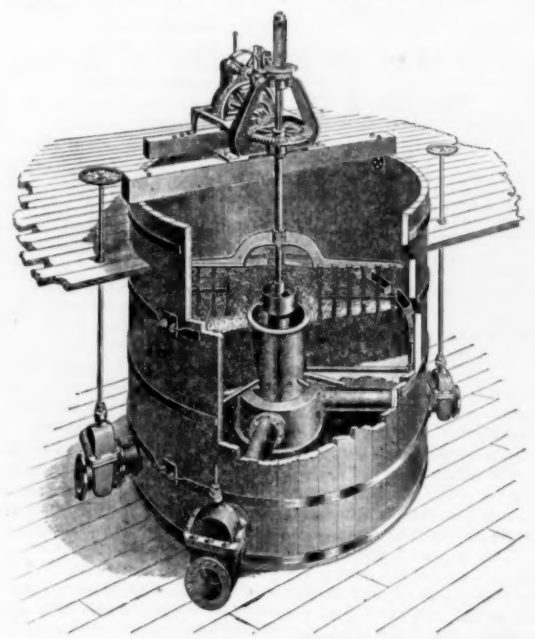
The removal of matter in suspension, is an important matter, but to this can be added the removal of iron and other impurities held in solution, and at a very small expense, by the most improved methods of filtration.

The Warren filter here shown is the invention of Mr. John E. Warren, agent for S. D. Warren & Co., paper manufacturers, of Cumberland Mills, Me., and they now have at this immense paper manufactory, a plant filtering 12,000,000 gallons daily, which is the largest plant for filtering, for purely industrial purposes, in the world.

There are several important points of advantage claimed for this filter and system of filtration, prominent among which, is that a less amount of alum as a coagulant is used than in any other, and that no alum is left in the filtered water.

A device patented by Prof. Carmichael, and owned by the Cumberland Mfg. Co., 220 Devonshire St., Boston, who build this filter, provides for the automatic regulation of the admission of the coagulant by the flow of the unfiltered water.

The filtering material is the very best quality of specially screened and prepared sand or quartz. The filter is constructed with a central well containing the inlet and waste pipe, connecting gutters and a vertically moving shaft and agitator for cleaning the filter bed of the accumulated material. The filter or filters are connected with a tank of large capacity which the unfiltered water first enters, thereby operating the pump supplying the coagulant. This tank or settling basin, plays an important part in the purification of the water, as by it, the consumption of alum is decreased, its full efficacy assured, and much of the heavier matter in suspension removed by sedimentation.



THE CUMBERLAND FILTER.

Streams polluted with dyehouse washings, wool scour and other refuse from textile mills, dye houses, bleacheries or finishing establishments, have been purified so successfully, that the water is used for paper mills which have established a high reputation for qualities which can only be secured in paper by the use of clear, bright, pure and sparkling water.

The Cumberland Mfg. Co., 220 Devonshire St., Boston, will give further information on the removal of clay, mud, vegetable or chemical impurities, and make filters of large capacity only, running from 6000 gallons per hour to as many millions of gallons per day as may be required. They would be happy to hear from plants requiring large supply, or from water works or other large consumers of water.

Aniline Black Dyeing.

A recent patent taken out by Mr. O. B. Amend, of New York, describes a new process of dyeing textile fabrics, which is particularly applicable to wool. A bath of 40 grm. of chromic acid and 30 grm. of hydrochloric acid for every kilogramme of material used is made with enough water to work the materials easily. This bath is kept at a temperature of 20 to 30 deg. C. The time of immersion is not given. The goods are pressed so as to squeeze out any excess of the liquor, and passed into a bath containing 100 grm. of aniline salt and a proportionate quantity of ferric chloride or other suitable salt which can act as an oxidant. This is used cold, and the goods are kept immersed until they have acquired a certain color, when they are taken out and exposed in an ager to the combined action of air and steam at a temperature of 80 deg. C. until a black is obtained. This will withstand all the tests required of the best blacks, presumably, therefore, it will not green. The inventor claims to have discovered a new principle in the dyeing of aniline black on animal fibres, *i. e.*, that chromic acid in the presence of hydrochloric or acetic acids (or of acids which will not produce a secondary oxidation of the fibre) partially oxidises them and partially produces chromium-fibre compounds which, in the subsequent dyeing operation, are decomposed by the aniline salt, with the production of black dyed fibres and chromium chloride. Sulphuric acid and nitric acid cannot be used in this process as they exert, according to the patentee, an oxidising reaction on the wool. This process is applicable to fabrics composed of wool alone or to mixed wool and cotton tissues.—[Dyer and Calico Printer.]

Auramine G.

Auramine G. is a new yellow for cotton, manufactured by the Society of Chemical Industry, in Basle, and introduced in the American market by their sole agents, the A. Klipstein Company, 122 Pearl Street, New York.

Auramine G. is a very similar product to Auramine O, but much greener and more brilliant than the latter color.

Auramine G. dyes on a tanine and tartar emetic mordant, 1 per cent. of the color will give a very full and pretty shade.

Very pretty green shades can be produced by combining Auramine G. with Fast Green Cryst O. For practical experiments see this month's "Experimental Dye Sheet."

NEW BRANDS OF DYESTUFFS.

Under this head we publish brief mention of the new brands of dyestuffs which have been placed on the market since our previous issue. More extended description will usually be found elsewhere in our columns.

Auramine G;
New yellow on cotton. A. Klipstein Co., 122 Pearl St., New York.

Cotton Orange R and G;
Wm. Pickhardt & Kuttroff, 98 Liberty St., New York.

Chrome Brown R O;
For wool. Schulze-Berge & Koechl, 79 Murray St., New York.

Diamine Black B H;
For cotton, (produces from a steel gray to a jet black.) Wm. J. Matheson & Co., 178 Front St., New York.

Archill Substitute;
W. W. Hanna, 50-52 N. Front St., Philadelphia, Pa.

Chicago Brown B, G G;
For cotton. John J. Keller & Co., 104 Murray St., New York.

Brilliant Red W;
For wool. C. Bischoff & Co., 80 Front St., New York.

FULLING AND SCOURING SOAPS.

XXX OLIVE SOAP. PERFECTLY PURE. In Chips, Bars, and Solid.
Is praised by all Dyers who have used it. Manufactured by the
CAMDEN AND PHILADELPHIA SOAP CO.,
507 Main Street, - - - CAMDEN, N. J.

Satinet Printing and Dyeing.

EDWARD TURNBULL.

NO. II.

In previous article on above subject, I dwelt very largely on the preparation of goods before receiving any definite pattern. I will try to make it as clear as I possibly can, how, from a comparatively few engraved copper rollers, an almost unlimited number of styles are produced.

In the first place, one of the most common patterns, that enters into the composition of a very great portion of the styles is what is commonly known as

THE GRAPE VINE.

This grape vine pattern is invariably printed with white color, (composed of zinc white mixed with albumen and starch), it imparts to the goods an entirely different appearance; after this operation perfect drying is indispensible again. On this grape vine pattern can then be printed any other figure, that goes to make up the whole of the complete design, often a small object to imitate a woven thread, either in red, blue, green or in fact any color. It is this mingling of figures, which renders it so extremely difficult at times, to form an opinion, whether the designs we see on fabrics are the product of the loom or the printing machine. The similarity is so great that an expert is sometimes at a loss to judge between the two.

It is in this co-mingling of objects, and the using of one pattern on the various colors, that renders it possible for the printer of satinets to give at least

FIFTY STYLES

for the competing weaver's one.

After printing these objects which only go to help to make up the design, a certain definite pattern is printed on the top of them, it may be a plaid, diagonal, stripe or any of those irregular effects, which the fashion in men's garments sometimes call for. It will be seen that a design necesitates quite a number of colors being used, and in most instances, every color requires a separate passing through the printing machine. It may happen that the goods before leaving the printing department, will have passed anywhere from two to six times through the printing machine; not necessarily through the same machine, in fact, for systematic working

NOT LESS THAN FIVE MACHINES

should be used, if business justifies it. If this number of machines can be maintained in operation, a regular routine can be made, whereby one machine can follow another, and contribute its quota of the design, which will insure a big output, and economical working.

DESCRIPTION OF PRINTING MACHINE.

It will be opportune here, to describe the kind of printing machine in general use in the satinet trade. They differ from the calico printing machine only in their size; in principle, construction and application, they are exactly the same, but in satinet printing the rule is to print one color at one time. In calico printing the rule is to print all the way from one up to ten colors at one operation.

The question might easily be asked, if it is necessary to put a number of colors on satinets, why not put them all on at once like the calico printer? It would take too much time and space to give all the reasons why it would not. Two reasons will suffice. In the first place, printing on woolen goods (satinets are essentially woolen goods and enter into competition with woven woolen fabrics) necessitates a design and appearance to imitate the higher qualities of woolen cloth; so it well be seen that a wooly appearance means that the design in most instances need not have that perfect regularity which calico, cretonne, or selisia printing demands. It is often the aim of the designer to obtain that *promiscuous* effect which characterizes woolen fabrics, especially seen in Scotch tweeds, etc.

The second reason is that the small printing machines used in satinets renders it very easy to change from one color to another; and as the number of yards to a given style is as a rule small, averaging perhaps eight hundred yards, it would take up more time to fit up a machine to put on all the colors at once, than it would to run them singly, and I have before tried to show how important it was to dry the goods after each operation, for it helps the brilliancy of each color as well as the permanancy.

TWO COLORS ARE OFTEN PUT ON AT ONE OPERATION,

forming well defined patterns; two copper rollers being specially selected for that purpose, of uniform size, and manipulated by the printer to fit the exact lines on engraved rollers, thus producing a design, the colors of which, have perfect uniformity.

Thus far I have only mentioned the composition of colors used, classed as pigments; it must not be inferred that these are the only kind used; such is not the case; as nearly all the derivatives of anilines, from scarlet to chocolate, and the various extracts used, both in printing and dyeing, are made use of. These varying

COLORING MATTERS

are used in all proportions separately, and mixed together in varying quantities to produce any desired shade. The coloring matters are mostly soluble in hot water, though sometimes a little acetic acid will in some instances be required; for a few purposes alcohol is necessary.

In every instance for printing purposes, these coloring matters require to be mixed, or thickened as it is called, by starch, and for different purposes a varying amount of starch is used, all the way from half a pound to two pounds of starch to the gallon of water. Often the requisite amount of coloring matter, water and starch, are boiled together, and this system is better whenever it can be adopted, as it insures complete dissolving of coloring matter and thorough mixing of the ingredients. I must not forget one color, as it is the most important in satinet printing, black, that being the color used with few exceptions to give the distinguishing portion of the design its characteristics.

THE FORMULA FOR THIS BLACK

varies slightly, according to the ideas of color makers, but the base of them all is the combination of logwood and nitrate of iron; sometimes a small quantity of muriate of iron is used, often a little indigo extract is added. This black (and the aniline colors mentioned above) has to depend on its *chemical* affinity for cotton and wool for its permanency. The pigment colors depend on its mechanical affinity for *albumen*, and the albumen on its adhesive power, under high temperature, for its permanency.

THE COPPER ROLLERS

used in this style of work, need to have the engraved pattern made very deep, to insure a large volume of coloring matter printed on the cloth, in fact, the goods in most instances after leaving the printing room are saturated with color; both back and face of the cloth are printed; the back will receive one run through the machine to give the appearance to the goods of the pattern having been woven in. These printed satinets may be seen in clothing store windows, and are sold often as all wool goods, and for general appearance, neatness of design, will bear inspection, and contrast very favorably with high grade cassimeres.

The goods after printing, being thoroughly dry, are run into as close proximity to the steaming box as circumstances will allow. The goods are placed down on trucks in folds of uniform length, by hand work; for being heavy, and as it is necessary to have every fold exactly one length (I will try to give the reason for this in next article) human skill is found to be more reliable, and in this instance more economical. I intended to embrace steaming in this letter, but will have to leave it, as I want to enter into that subject as thoroughly as my limited knowledge and experience will allow, for I believe the importance of this process very much overlooked.

Dyestuff Review.

Imperial yellow and Milling Scarlet, both colors which are sold by Messrs. Beach & Co., Hartford Conn., have received considerable attention from our correspondents. Both colors are fast to fulling, and the Milling Scarlet is exellent for blanket headings. 1 per cent. Imperial Yellow will produce a rich full shade of yellow.

The Seal Brown of Messrs. Zellner Bros., 213-215 S. Front Street, Philadelphia, has also received recommendation for its fastness to light; the dye process is very simple, the wool is dyed in a neutral bath. Seal brown is a good color for carpet yarn.

Our January dye sheet displayed some very pretty colors on cotton; we wish to draw special attention to Chicago Brown GG. of Messrs. John J. Keller & Co., 104 Murray Street, New York, which is quite a new product, and produces very rich shades.

Cutch Brown G and GG., of Messrs. C. Bischoff & Co., is a color which is very much in demand, the same being fast to light and washing.

Drab B, of Mr. Alex. P. Mende, 14 Water Street, New York, is an excellent color for greys on cotton, and cotton and wool mixed goods. Drab B dyes in a one dip process and dyes easy and level, only care must be taken, that after the cotton is taken from the bath, it is well drained before washing.

We would direct the attention of any dyer using archill, a product which is no longer used to a great extent in dyeing, to the archill substitute of Mr. W. W. Hanna, 50-52 N. Front Street, Philadelphia, Pa.

Sample 88, on the February dye sheet, shows a very pretty dark blue; this was dyed with 20 per cent. Mazarin Blue on a chrome mordant, this blue is of good fastness to light, will not rub nor smut. Mazarin Blue is sold by the Anchor Color Mfg. Co., 464-66 Cherry Street, New York.

Sample 91 displays a sample of silk dyed with Lyons Blue C P. of Messrs. Sykes & Street, 85 Water Street, New York.

Lyons Blue C P posesses wonderful tinctorial powers; 1-4 ounce of colors to 25 lbs. of silk, will produce a beautiful baby blue, whereas 1 1-2 to 2 ounces will produce a very rich dark blue (see Experimental Dye Sheet in March.) The shades produced with Lyons Blue C P are handsome, nor does artificial light alter the shades.

We wish to draw attention of the dyers once more to the fact that in our laboratory, cotton yarn is not boiled off before dyeing, but "Fankhausine" is used. This is sold by the Nashoba Mfg. Co., Ayer, Mass., and by their agent Mr. Jonathan Horsfall, 216 Chestnut Street, Philadelphia, Pa.

Fankhausine ought to be used in every dyehouse as it saves time, money and labor, and helps to produce brighter colors.

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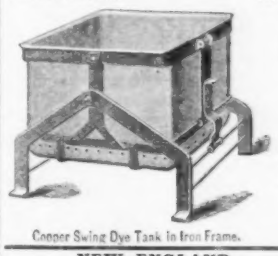
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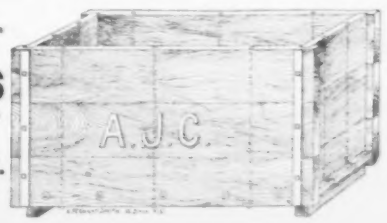

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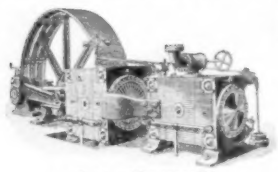

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It is the only article mentioned in our scientific treatises on Steam Engineering, and is highly recommended in very many of these standard works.

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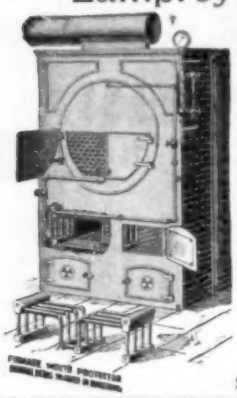

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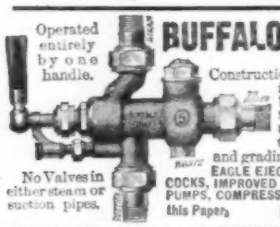

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Bringing Up a Steam Plant.

BY REX.

No. XVII.

ROPE TRANSMISSION.

"Mr. Rex: I think I shall try and do away with the belts and put on ropes," said the manager one morning, in regard to the new mill.

This meant that we were in for another struggle and so we started out on that line at the beginning.

"Mr. P: What's the matter with belts?"

"Well, they cost more than ropes, are much heavier; then again the wood pulleys are much lighter than iron, and cost less."

"But wont the ropes and wood pulleys wear out faster than belts and iron pulleys?"

"Well supposing they do? They cost less."

"Yes: But the time taken up in repairs and lost through breaks will amount to considerable."

"Nousense: I have gone over the matter very thoroughly with Mr. Lampwick, of Boston, and he says that there would be a great saving in a year over the old style of running with belts."

"Is Lampwick in this business?"

"Supposing he is?"

"Nothing, only he may have some axe to grind in recommending it."

"Perhaps you haven't heard that ropes are run almost exclusively across the water, say in England and the Continent."

"Oh, yes: But are you going to adopt the English system."

"Why: They use ropes and so will we."

"To be sure, but the system makes all the difference in the world."

"That, Mr. Rex; is all a matter of opinion."

That's the way the subject was introduced and we started to wrestle with the problem.

Several consultations with Mr. Lampwick and others equally interested in showing us improved (?) methods resulted in our having the plant fixed up as a model for power users in our vicinity.

The first kick was in having the engine drive wheel grooved to accommodate ropes, but it was finally decided that as the drive wheel was made years ago, it had a much heavier rim than those of more recent build, so that grooving would not reduce its strength or weight beyond efficiency limit. We had 20 grooves put on the face of the wheel and they were each *narrowed a trifle* to get them all in, but they went there.

PRETTY TO LOOK AT.

It must be acknowledged that those ropes did look very pretty running off of that drive wheel in four sections one each of eight, six, four and two rope drives, and turning at any angle without a thought of quarter turn belts. The pulleys too presented quite an attractive appearance, so clean and bright.

The supt. was in excellent spirits as he gave the order to start the engines and for the first time the ropes began to move so smooth, noiseless, and to all appearances, steady. Little by little we put on the load, first starting the line shafting by clutches and then the various machines, elevators, etc.

Anyone who would have dared to hint at a failure would have been very much frowned upon. One after another the various sections of machinery were put to work and our ropes began to see what they would have for a working load. At last the load was all on and the ropes were still holding their own.

All at once there came an inquiry as to where all the coal was going, followed by a close scrutiny of the indicator cards which revealed the fact that the load had from some reason or other been underestimated and our engine was working away beyond its economy rating.

Resolved to make the best of matters—from necessity—the superintendent said nothing further about coal consumption in this particular case.

A LITTLE SNAG.

One afternoon while engaged in taking cards to keep track of where we were and see how much we were running behind on power cost, we heard a *whish*, a few seconds later came another, then oil began to fly over the white ceiling of the engine room. The engine was shut down and an examination made. It was found that one strand had parted and untwisted until we had an eight foot lash travelling around the building at the rate of 3000 feet per minute.

Then came a call for some one who could splice a rope, and a workman was found who had seen service in the navy; his services were called into requisition and after waiting an hour and a half, during which time 1000 employees were idle we started up again.

A run of two days convinced us that there is quite a difference in splicing a rope to be used on ship board and one which is to run ten hours per day at the rate of 3000 feet per minute, for the rope parted again just back of the splice and the works were again shut down.

A consultation was held, and a committee of the whole decided that a long splice was not exactly the thing, and a short splice was put in. This did not pan out nearly as well as was expected, for after a run of about four hours we had another break.

These became a little too frequent for either pleasure or profit, so an expert in the line of rope splicing was called in, who stated that our former splices had been made too bungling, and that the ropes had cut in crossing the drive-wheel. Thinking that there might be something in his theory, he was engaged to look after the ropes and keep them spliced. We were also instructed to keep an account of just how many minutes were lost each time by shutting down.

The fact that we should be obliged to pay for an expert rope man never entered into our calculations when the ropes were put in, and made an unthought of item to be charged up against the expense. Of course we had to have the belt man just the same, for with the hundreds of belts in use, someone had to look after them.

A FEW UNCONSIDERED ITEMS.

The breaks so far had been all on one rope, and it was thought that it was partly owing to its running through one room where there was a large quantity of metal dust floating round, and that it might have been cut one thread at a time, until it grew weak and the strand gave way. But this theory was shattered like the others by the breaking of a rope leading in an entirely different direction, where if there was any dust at all, it was that from wood working machinery. This break was rather more disastrous than the others had been, for the end of the rope in coming round, struck one of the workmen's wrists, making quite a bad break. Of course we had his salary and expenses to pay while he was laid up, making another unlooked for expense chargeable to the rope.

This time our wise men decided that the edges of the grooves on the drive wheel were too sharp, and must be filed off, and we followed the expert's instructions; but the shut downs had become so frequent that Mr. Lampwick, who recommended the system, was sent for.

He came out bringing with him another expert who regaled us with glowing descriptions of how well ropes were running *somewhere else*, and expressed an opinion that our splices were not made right, and that we had made a fatal mistake when we allowed the ropes to run so long without dressing. This dressing was a new feature, and we absorbed it as readily as we had all other suggestions, and soon had a man decocting a mixture of molasses, tallow, resin and several ingredients, which, after being properly cooked, was put on the ropes to make the fibres lay smooth and make the rope practically one solid strand. Our chief splicer and numerous other ones of various degrees, were called up to watch a splice made *as it should be*, so that if a rope ever broke again they might be able to repair it properly; but alas for the "plans of mice and men," that rope did not run nearly so long as some spliced by "home talent." In fact it went to pieces before noon of the next day.

By this time the clerk had so much work on his hands trying to adjust the pay of our 1000 employes to our frequent halts, that some other measure had to be adopted, consequently orders were issued, that when any drive gave way to cut that rope off and run the other drives until night, when the broken one could be replaced. This scheme helped the time keeper out first rate, but in a short time we found that if it was to be continued, we should have to start a rope factory to supply our needs.

(To be continued.)

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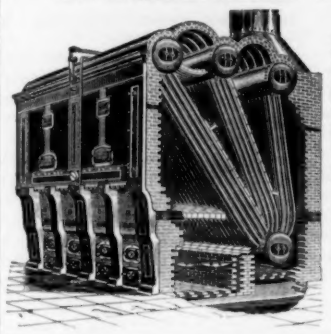

Absolutely safe at high pressure. Not an ounce of cast metal used in its construction. WE CAN PROVE to your entire satisfaction that the "Stirling" will give much higher average economy, with far less expense for repairs, than any boiler on the market to-day, and in proof of our claims we can refer you to some of the largest firms in the Country. Please do us the favor to investigate before purchasing elsewhere.

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The Care of Steam Boilers.

The investigating committee of the famous Franklin Institute of Philadelphia, recently made a visit to the extensive chemical works and laboratory of Mr. G. W. Lord, of that city, the well-known and popular manufacturer of "Lord's Boiler Compound."

Mr. Lord personally conducted them through the many departments of his plant, fully detailing and explaining the various processes associated with the manufacture and production of chemical bodies and further instructed them as to the chemical properties developed and augmented by the progressive manipulation presented to their observation. Subsequently they visited Mr. Lord's laboratory, where all the requisite implements and instruments were represented necessary to effect, the chemical analysis of substances whose elementary constituents were to be ascertained. The specific details and progressive processes of chemical analysis were there intelligently and instructively explained, after which Mr. Lord supplemented his previous assertions by prosecuting some very interesting chemical manipulations with the foreign impurites of natural waters. During these demonstrations Mr. Lord effected the complete precipitation, neutralization and decomposition of all the incrustating and corrosive impurities contained in the sample of water examined, which were subsequently affirmed by the in-

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THE "ALERT."
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competency of the usual reagents to effect any chemical reaction.

After completing the tour of Mr. Lord's manufacturing departments the visitors were shown through his shipping establishment; here his celebrated chemical preventive of incrustation and corrosion, known under the trademark of Lord's Boiler Compound, practically existed in inexhaustible quantities. Countless numbers of packages of diversified capacity were apportioned off in carload lots, then being delivered to our representive oil houses and mill supply houses from ocean to ocean; the tons and tons of compound here distributed best demonstrate the popularity and demand for this superior preparation.

Mr. Lord has gained a high reputation in the chemical treatment of water. His preparations are in exclusive use by the United States and most foreign governments and his preparations are endorsed and recommended in our best modern treatises on steam engineering. Like all genuine and successful commodities to which attach good will and confidence, Lord's Boiler Compound has had to contend with numberless counterfeit and imitative articles on its onward march to success. Mr. Lord presented them for examination many letters from steam users all over the country, who complain of the unscrupulous and dishonest representation of dealers who have imposed upon them spurious articles represented as Lord's Boiler Compound.

Unlike the many nostrums formulated by incompetent parties, with which the market is flooded, and which usually consist of dangerous and inflammable oils, caustic alkalies and acids, compounded in various proportions to meet with the ideas of the manufacturer, Lord's Boiler Compound is formulated to fulfill the requirements of the individual steam user, based upon an exhaustive analysis of the water used, and is composed only of such reagents as are consistent with the highest chemical authority, and whose merit, both separately and collectively, has been confirmed by thirty years of usage. To those in need of a sure and effective preventative of boiler incrustation and corrosion, there is no preparation deserving of greater consideration than Lord's Compound. Orders should be sent direct to G. W. Lord, 309 Union Street, Philadelphia.

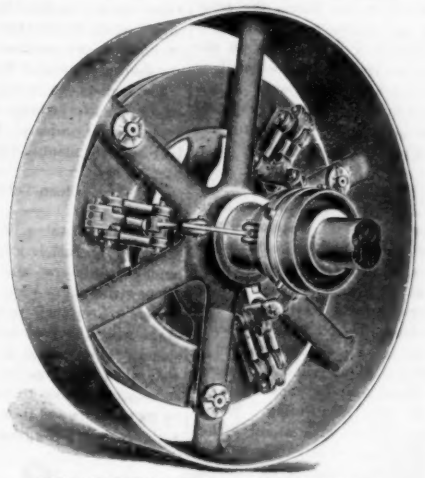
"Imperial" Friction Clutch Pulley.

It has come to be admitted by all experts in mechanical matters, that no establishment where power is used can be regarded as complete, or as economically equipped, without the perfect control of that power by means of friction clutches.

The ultimate practice will be without doubt, to place a friction clutch pulley or coupling on every line of shafting throughout a complete plant; and it would seem that the enormous saving in power, and in the wear and tear on shafting and boxes; the increased degree of safety, and the actually decreased cost as contrasted with that of a system of fast and loose pulleys, with the attendant belts and wide faced drums, in constant motion even when not in use, that would be effected, should bring about such an improvement in truly modern establishments, in the very near future.

It is hardly a matter for argument that the ability to throw off instantly, in case of fire, all shafting and pulleys, and to use the whole power for throwing water; that in case of accident, one section of shafting can be stopped in five seconds of time, without shutting down a large part, if not the whole of a plant; that in case of a need to run a portion of a manufacturing establishment overtime, it can be done without wasting power by driving three or four times as much mill gearing as is necessary; that any machine can be started or stopped gradually or abruptly, as may be desired; that by the disuse of shifting belts, tighter driving may be accomplished with a resultant increase of the power transmitted and the evenness by which it is done; that, in brief, an immediate and perfect control over every pulley, machine, counter shaft, section of line shafting, or line shafting complete, irrespective of speed or weight, may be obtained; it is hardly a matter for argument that these claimed advantages are real and actual.

The cause, perhaps, for the non-adoption in existence, of friction clutch pulleys and couplings, is that among the numbers now on the market, it has been difficult to find one which does not possess, along with many unquestionably good points, some radical defect which has offset in a large measure the above mentioned advantages.


THE "IMPERIAL" FRICTION CLUTCH PULLEY.

Messrs. J. W. Penfield & Son, of Willoughby, Ohio, have however, perfected an apparatus which they claim avoids the well known defects of other makes, and has so far, under, in many cases, the most stringent conditions, proved itself equal to all demands.

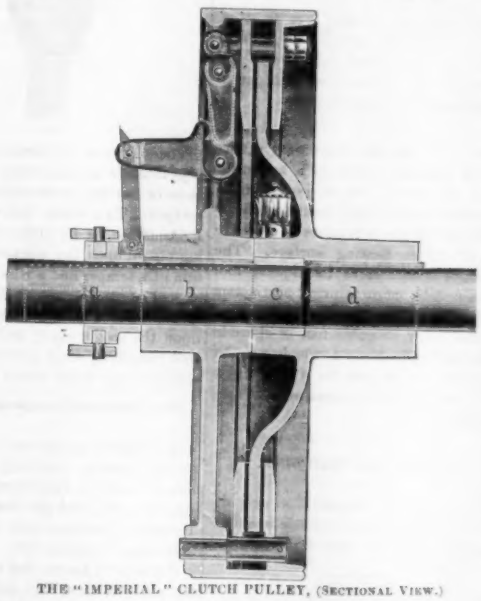
As will be seen by a reference to the illustration, the "Imperial" Friction Clutch Pulley, is provided with two circular friction rings, between which runs a friction disc. The disc is keyed to the shaft, and turns with it, while the clutch mechanism and the pulley itself remain loose on the shaft. The actuating compound levers clamp the friction disc between the friction rings, thereby making the whole to all intents and purposes a solid mass in motion with the shaft.

The clutch mechanism is very powerful, and being inside the lines of the pulley, cannot be interfered with by any outside agency such as the throwing off of a belt, or similar possible happenings. The surfaces of the friction rings are protected with strips of insulated fibre, which can be renewed at any time. The other item of greatest wear also, the bushings, are in halves, and removable, and can be taken out, and re-babbitted at any time without taking the pulley from the shaft.

The "Imperial" pulley, also, overcomes for the first time effectively, the objection that has been raised to placing friction pulleys on the line shaft instead of on the machine; an arrangement which has considerable advantages had it been hitherto possible. By the special construction of the "Imperial" clutch pulley, the whole mechanism, with the exception of the friction disc, is loose on the shaft; consequently, should the friction slip at any time, and an adjustment be necessary, or should it be desired to renew the insulated fibre strips, the apparatus may be brought to a standstill, and the alterations and adjustments made without stopping the shaft. For electric lighting plants, where continuous motion is a necessity, this constitutes an enormous advantage.

Again, by reason of the movement of the friction rings being parallel to the shaft, it is not possible for the pulley to be accidentally thrown in or out of clutch, nor is there a limit on the speed at which the clutch may be run, for the centrifugal force has no effect on the balance of the parts, as the resistance is in direct line with the strain.

The same advantages apply also to the "Imperial" Friction Cut-off Coupling; as will be seen by reference to the sectional illustration. The whole apparatus is by reason of its simplicity capable of being perfectly balanced, thus causing no unusual strain on the shaft, by the whirling round of a mass of unbalanced parts; the possibility of accident to workpeople is minimized by its presenting no unduly extending parts; and by being self contained to an exceptional degree it occupies an unusually small space on the shaft.



THE "IMPERIAL" CLUTCH PULLEY, (SECTIONAL VIEW.)

Messrs. H. G. McKerrow & Co., 620 Atlantic Avenue, Boston, Mass., are the New England agents for this improved piece of mechanism, and will doubtless be glad to afford further information, as to catalogues, prices, etc.

—S. Moore, designer in the mill of S. T. Willett, of Chambly, Que., succeeds A. Sheriff, resigned, as superintendent of that mill.

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THE SLATER-BROWN ENGINE stands without a peer. The most Economical Engine in the World. Large contracts taken every week.
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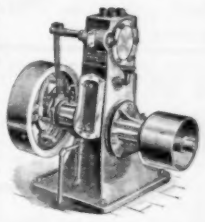
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Just the Engine for Knitting Work, and especially adapted for Electric Lighting.
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$85.00 for and Indicator when you can get either of these for $40.00, packed in finest cases, finest workmanship, finest material, and the best designs.
Send for circular of Reducing Wheels, Planimeters, Three-Way Cocks and 25 other high grade specialties.
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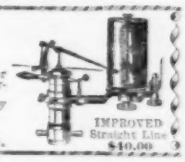
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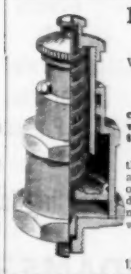
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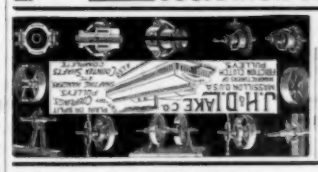

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MANUFACTURERS OF
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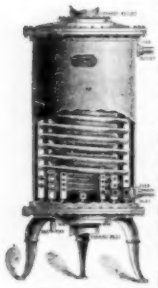

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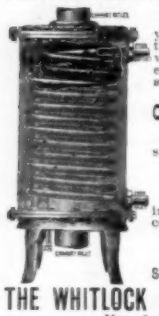

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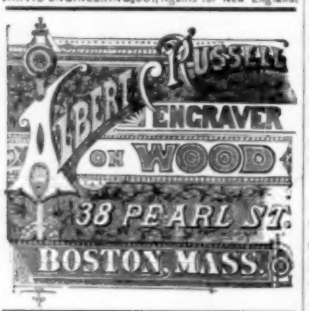

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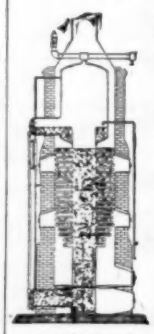

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Contains Nothing Injurious to Leather.
It will prevent slipping of belts, render them pliable and substantially waterproof, and greatly increase their service and durability.
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Hints for Steam Users.

Loose rivets are generally the effect of over heating. They should be cut out and new ones driven; but in case the rivets are too small for the thickness of the plates, and especially in a girth seam, the rivets must be replaced by others of a larger diameter.

***

Blisters are due to imperfect welding in the manufacture of plates. They should be trimmed off to ascertain their extent and thickness, and if of small area and slight thickness, are not dangerous; but if the contrary is the case, or if the plate is cracked under the blister, they must be cut out, and a "hard patch" put on inside the boiler to avoid making a pocket for the collection of sediment. Sometimes this patch will be found to leak, and caulking will not stop it, in which case, on removing the patch previous to renewal, it will generally be found that there are cracks under the heads of the rivets.

***

Burnt plates are due to "low water," to a deposit of sediment or scale, to continued impact of flame caused by leaks of air through the masonry, and when a seam is just back of a bridge wall; but sometimes it is caused from an incrustation, or soap formed from oily matter. The place should be cut out and a hard patch put on.

***

Bagging, buckling or bulging of plates, sometimes forming a pocket, generally occurs from the overheating of the iron in consequence of deposits of oil, sediment or scale. Sometimes it occurs when the boilers are clean, and then it is the result of impact of flame, or it may be caused by the unequal expansion of the various laminæ of the plates under their daily usage in case there are no signs of overheating. It is very liable to occur in the flat fire-sheets o the sides of fire-box boilers when th f stays are spaced too far apart. The usual remedy in this case is to put an additional stay-bolt between each four stays already there. The presence of a bulge on the bottom fire-sheet of a boiler is not necessarily dangerous, but it must be watched carefully, and its surfaces kept clean, and, at the first indication of weakness, it must be heated and forced back into place, or else cut out and a hard patch put on.

***

Seam leaks are generally considered fair evidence of overheating, especially in the lower half of the girth seams. They should be carefully examined, the rivets having been cut out, and if any evidences of cracks under the heads of the rivets are to be found, the seam should be cut out also, and a patch put on. Sometimes a leak occurs in the seam from the rivets being too small, or from the lap being too great. In the former case the rivets should be replaced by larger ones, and in the latter the seam must be chipped or caulked.

***

Cracks in plates may be due to overheating or to unequal contraction and expansion, or to letting cold water strike on a hot plate, and this last often happens in hurrying to clean a boiler. As a general rule, it is safe to say that accidents from the overheating of boiler surfaces do not occur at the moment of overheating, but at some subsequent period. How soon depends upon the extent of the overheating. Steam boilers can be used with almost perfect security if proper attention is paid to them, requiring merely a careful observance of natural laws, and the constant exertion of that much neglected faculty called common sense.

***

To repair a feed or other water pipe, mix a moderately stiff putty from red and white lead with boiled linseed oil, and work into it some hemp chopped into short lengths; lay it over the crack in a moderately thick mass; then wrap some strips of canvas (parceling) round the rope tightly, overlapping both ends of the crack, and finish by sewing marline hard over the parceling. If the pipe is found to be worn thin and is full of holes, bend a piece of thin sheet copper or tin to the round of the pipe, lay it on the putty, then parcel and serve as before directed.

***

For a cement to fasten iron to stone, take 10 parts iron filings, 30 parts of plaster of Paris, and 1-2 part of sal ammoniac; mix with weak vinegar to a fluid paste and apply at once.

***

For steam heating allow one square foot of heating surface in a boiler for every 200 cubic feet of space in a church; in a dwelling house every 50 cubic feet of space requires one square foot of boiler heating surface. The radiators should have one square foot of superficial area to every six square feet of glass in windows, and one square foot for every 80 cubic feet of space to be heated. One-horse power in a boiler is generally sufficient for 40,000 cubic feet of space for a temperature of 70 deg. Fahrenheit.

Lunkenheimer Shaft Oiler.

The advantages claimed for this device are that they are all made in a first-class manner, of the best materials, and

warranted in every respect; that they are as reliable in winter as in summer. Being perfectly air-tight, the oil will never gum in them, and they are always free from dust and grit. They will feed only when the machinery is in motion. In case of breakage, a glass can easily be replaced at a small cost.

They are made in three sizes, Nos. one, two and three, holding one, two and three ounces of oil, respectively.

The following directions for use are given:

Fill the oiler full of oil, screw on the socket tight, and then screw the stem tightly into the oil hole in bearing. When the cups need refilling unscrew the stem out of the hole, take the oiler apart, and proceed as before. See that the hole through stem is always clear of any obstruction before putting the oiler in its place, also that the glass globe is always tight in its socket.

The oilers are shipped set for a moderate feed. The oil-hole in the stem is drilled parallel with the slot in the set-screw. By turning the regulating screw a quarter-turn to the left or right, the supply of oil is entirely cut off. Between these two positions of the screw any desired amount of feed may be had.

These oilers can be supplied by leading dealers everywhere, or by The Lunkenheimer Company, Cincinnati, O., U. S. A., sole manufacturers.

Clean Tubes.

That clean tubes in boilers mean a saving of fuel is a fact well known among engineers and steam users. Among the many ways devised by engineers to keep their tubes clean is that of blowing the soot and ashes out by steam. This process is open to many well taken objections on account of the steam causing soot to stick to the tube by its moisture and thus turning it into a highly corrosive agent.

The old form of scrapers were also objectionable in that they always left more or less soot in the tubes after being scraped. To obviate this difficulty G. P. Anderson, of 39 Oliver St., Boston, has placed upon the market a combination of a scraper and a wire brush which as will be readily seen by the cut, places all the hardest work of removing scale upon the steel scraper, and the ashes or soot remaining after the scraper are removed by the brush which follows it.

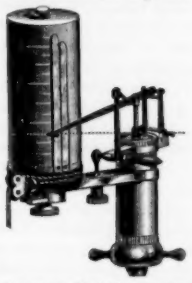
The Robertson-Thompson Indicator.

It is always a pleasure to place before our readers anything new in this line of power appliances possessing special merit, and the new Robertson-Thompson Indicator has many features to interest the steam user.

It is a well known fact that for years the price of first class indicators upon the market has been so high as to place them practically out of the reach of ordinary engineers. Recognizing this fact, this company has taken advantage of it and have constructed an indicator which is first class in every respect and possesses many features which make it the equal if not superior of those on the market at present.

Not only have they done this, but in addition have placed it at a figure which enables every engineer to own an accurate reliable machine, instead of being compelled to work with one which, to say the least, was not reliable.

This instrument is standard size with piston 1/2 inch area, of the best material and workmanship and guaranteed by the makers to be equal in accuracy to any now on the market. The parallel motion is of unquestioned accuracy and is secured by a controlling lever attached to the pencil arm, governing it direct, and the pivots are free from any appreciable lost motion, and will remain so indefinitely; it will be noticed by reference to the cut that the two links are parallel with each other at all points of the stroke, and that the lower pivots of these links are always in a straight line with the pencil point, and by substituting the controlling lever for the imaginary link, it forms an exact pantograph, without depending on the piston rod for a guide, the disadvantage of which we have already mentioned.



It will be seen that the movement fo the pencil coincides with that of the piston at all points of the stroke, a point of great importance which every intending purchaser should carefully consider.

Piston Rod. The piston rod is made of steel, hollow, and threaded on the inside to receive a swivel rod, which permits of the adjustment of the pencil to any height on the drum.

Drum. The drum is 1.75 inches in diameter, is as light as is consistent with ordinary use, is turned on centres, and provided with a bearing one and one half inches long at the bottom, and one-half inch long at the top, and is further provided with cone bearings at the top and bottom to take up end play on the shaft. The spring can be adjusted for any speed, high or low, by quarter revolutions.

Guide Pulley. The guide pulley admits of the cord being led in every possible direction without the use of carrying pulleys.

Adjustability. The instrument can be readily changed from right to left hand, and is perfectly adapted, on account of its light moving parts, to engines of any high speed met in practice.

Springs. The springs are made of the finest quality of steel wire, carefully tempered and accurately adjusted.

The indicator is packed in a polished hard wood case, with nickle handle, lock and corner pieces, with one three-way or two straight-way cocks, two springs, cords, cards, scales, pencils, oil wrench, screw driver and book of instructions. Complete circulars can be had of Hine & Robertson Co., 67 Cortlandt Street, New York.

Adams Water Tube Boiler.

A recent test made by D. Ashworth, M. E., of Pittsburgh, on three Adams Patent Upright Water Tube Boilers, a total of 675 h. p., at the Falcon Tinplate & Sheet Co., Niles, O., showed excellent results. The fuel was low grade, bituminous slack, handfired. The boilers developed on a seven hour test, 941 h. p. and evaporated 9.74 lbs. water for 1 lb. combustible, from 212° F. feed water; steam pressure averaged 84 lbs.; temperature of waste gases 467°; moisture in steam 6-10 of 1%. The boilers were tested as they were running the works every day, having been in constant service for eleven months.

As a result of the test, an order was given the Adams Boiler Co. The Cuyohoga, Cleveland, O., for one boiler of 500 h. p., to be fitted with automatic stokers.

—We have received from Jones & Lampson Machine Co., Springfield, Vt. an exquisitely embossed and handsomely illustrated catalogue of their "Rapid Lathe Work, New Method." The catalogue is worthy of the machine which it illustrates, which is devised as its name implies, and is of interest to every mill having a repair shop as well as to the builders of machinery.

Some Things You Ought to Know.

For the benefit of young engineers, and those interested in the safe use of steam, we will repeat here the rules used for calculating the bursting, the safe working pressures of boilers, and also those for fixing the weights on safety valves, and which we believe are used by the Hartford Steam Boiler Inspection & Insurance Co.

TO COMPUTE THE BURSTING PRESSURE OF A BOILER.

Data required: Diameter of shell; Thickness of shell plates; Tensile strength of shell plates per square inch of section. (If no brand is to be found on the plates, it should be taken at 40,000 pounds per square inch.) Pitch of rivets; Diameter of rivet holes, usually about 13-16 of an inch.

First ascertain the percentage of the plate left after the rivet holes are punched, as follows:

$$\frac{\text{Pitch of rivets} - \text{Diam. of rivet hole}}{\text{Pitch of Rivets}}$$

That is: *From the distance apart of of the rivets from centre to centre, subtract the diameter of the rivet hole and divide the remainder by the first number; the quotient is the percentage of plate remaining to the solid plate.* This percentage is what we must use in calculating the strength of the shell.

Second: *Multiply the tensile strength of the material of which the plates are composed, by their thickness in parts of an inch, and this product by the percentage of plate as found above; divide this last product by one half the diameter of the boiler; the quotient will be the bursting pressure per square inch.*

The bursting pressure thus found, divided by the factor of safety, will give the safe working pressure.

As an illustration suppose we have a boiler 54 inches in diameter, plates 5-16 in. thick, made of iron branded T. S. 50,000 lbs., pitch of rivets=3 1-8 inches, rivet holes 3-4 inch diameter; what would be the bursting pressure?

The percentage of plate in such a joint would be,

$$\frac{3\frac{1}{8} - \frac{3}{4}}{3\frac{1}{8}} = .76 \text{ of the whole plate.}$$

Then we shall have

$$\frac{50{,}000 \times \frac{5}{16} \times .76}{27} = 440 \text{ lbs. nearly}$$

as the pressure required to rupture the shell.

If we assume a factor of safety of 5, which is about right, we shall have

$$\frac{440}{5} = 88 \text{ lbs. for safe working pressure.}$$

It is immaterial in most cases whether a boiler is single or double riveted so long as the *pitch of rivets* is the same.

Steam Turbines.

In considering the steam turbine as a possible stepping-stone to the realization of higher economies in the utilization of steam, Prof. John Barr writes as follows in the March number of Cassier's Magazine:

Most engineers who noticed that modest little contrivance in Machinery Hall at the recent Chicago Exposition—the De Laval steam turbine—must have been impressed with its simplicity. Essentially it consists of two pieces, and no mechanism can have less, a wheel and its axle, with a suitable frame or support. It uses steam of high pressure, expanding it before it is used. The energy of the steam is transferred by free expansion into the kinetic energy of a mass in motion, and the impact of the particles of steam or water against the vanes is, in brief, the method of utilizing the energy stored in the steam. It is not a pressure engine, but an impact motor, analagous to the familiar Pelton water wheel. This motor of twenty horse-power could almost be packed in a common "grip."

But this latest aspirant for a share in the work of the world has its defects. Man's creations, like all men, resemble each other in one particular—all have their shortcomings. The electrical development of a dozen or more years ago called for higher speeds, and greatly stimulated the now prolific family of "high speed" engines. In this field especially could the new type compete on favorable terms with its more dignified predecessor, the slow-moving, long-stroke engine. The troublesome jack-shaft partially compensates for the better economy in indicated work of the slower engines. With the steam turbine we again find ovrselves encumbered with mechanism of transmission, interposed between the motor and the machine to be driven, but in this case the intermediate mechanism is required to "gear down" or to reduce the speed of revolution.

The present turbine is economically impossible except at extremely high rotative speeds—speeds many times too great, even for dynamo driving. In the little De Laval motor, the very compact reducing mechanism is the largest part of the machine, and still there is difficulty in getting sufficient high speed of steam disc and sufficiently low speed of delivery shaft. In the small motors shown at Chicago it must be admitted that skill in design and construction overcame this difficulty to a considerable degree, but the mechanical difficulties incident to such high speeds are great, and they would be magnified should this motor attempt to compete seriously with the orthodox engine of large capacity. It is claimed that this little motor of twenty horse-power has developed a horse-power with about nineteen pounds of steam per hour. This performance is about equal to that of our high-speed, compound, condensing engines—a truly remarkable and suggestive showing, if it be borne out by further trials. The De Laval turbine has been singled out for discussion as being the latest to attract general attention in this country, and as, perhaps, the most radical departure from established practice. We have become more or less familiar through the technical press, with the American Dow and the English Parsons turbines, and experiments with the latter, a year or more since, attracted much attention. Though these differ somewhat from the De Laval engine, they have the corresponding general advantages and disadvantages of the Swedish motor. It would be premature to even intimate that the reciprocating engine will be brought into serious general competition with the steam turbine; yet the manifest impossibility of completely eradicating the evil of internal condensation and re-evaporation from the ordinary engine, and the immunity of the newer form from this hereditary disease, has led many thoughtful engineers to look upon it as a thing of considerable promise.

The steam turbine makes a short cut past multiple cylinders, steam jackets, super heaters and non-conducting surfaces, and, great as the obstacles in its path undoubtedly are, they are mechanical in their nature, and such obstacles are seldom as obstinate in yielding to skillful treatment as the thermal wastes of the engine cylinder have proven.

Boiler Compound.

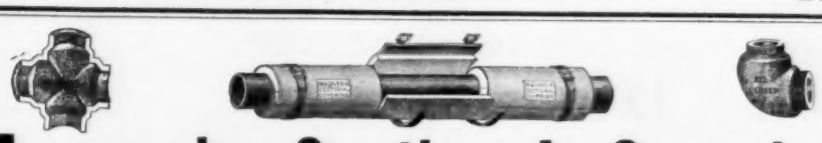
The time when the intelligent engineer or steam user would put into his boiler anything said to remove scale has passed, and this has practically forced out of the market many so called scale removers which were compounded much like the famous old buckshot doses of medicine, which were compounded of various drugs and given to the sick man with the hope or expectation that some of them might hit his case.

It must be admitted that these compounds had some effect, but the removal of scale often included the removal of the boiler, which was a somewhat expensive experiment.

In place of this "hit or miss" system of doing business, reliable compound manufacturers have adopted the plan of analyzing the water and making the compound to meet the case.

This system has been adopted by the New York Fire Proof Covering Co. in the manufacture of their "Compo" compound, which they will guarantee to remove the scale without taking the boiler with it or even injuring it in the least. They also furnish a compound to prevent grooving or pitting. In short they find out just what a boiler needs to keep it in condition, and then furnish the medicine.

Testimonials of the efficacy of their goods may be obtained by addressing the New York Fire Proof Cov. Co., 126 Liberty St., N. Y.



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Is it not desirable to have the most Efficient Heat Saver and the most Durable Covering? Nay, More, Is it not Economical, Imperative?

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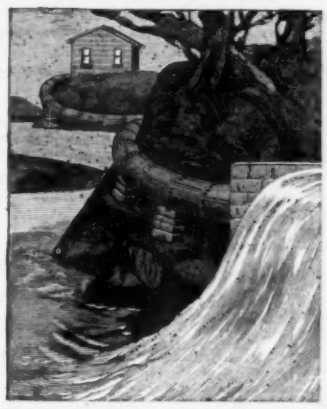

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WROUGHT STEEL PENSTOCKS

Have you a water power that you wish to develop? or a defective wooden penstock that you must repair or replace? Then secure descriptive circular and price of my steel penstocks. They are cheaper than wood, they are indestructible, they are absolutely water tight; they are constructed on the ground where they are to be used, therefore can be adapted to the most difficult places. They will stand any head of water, they can be made of any size desired; they have been tested and approved for years. For full information and price, address the manufacturer,

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Test of a Stirling Boiler.

WONDERFULLY DRY STEAM AND REMARKABLE ECONOMY.

Mr. Geo. H. Barrus, the well-known expert steam engineer, of Boston, has just completed a careful and thorough test on a 250 h.p. Stirling boiler, at Portland, Me., with the following results:

Water evaporated per lb. of coal,	10.54 lbs.
Equiv. evap. per lb. of coal from and at 212°,	11.025 lbs.
Equiv. evap. per lb of combustible from and at 212°,	12.061 lbs.
Moisture in steam while boiler was developing 380 h.p. or 52% above its rated capacity,	0.19%
Moisture in steam while boiler was working at its rated capacity.	0.06%

This proves in an emphatic manner the claims made for this boiler as regards high economy and dryness of steam, and parties who are thinking of putting in new boilers, would do well to investigate this boiler. The company have lately received some highly commendatory letters from some of the largest manufacturing concerns in the country, who are using these boilers, and Mr. J. Bradford Sargent, of 620 Atlantic Ave., Boston, Mass., the company's Eastern representative, would be pleased to furnish copies of these letters, as well as any further information, to all interested parties.

Lunkenheimer's Shaft Oiler.

EASILY ATTACHED.
EASILY FILLED.
EASILY REGULATED.

Always Reliable.

Made in 3 sizes. Nos. 1, 2 and 3 holding 1, 2 and 3 ounces of oil respectively.

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The Lunkenheimer Company,
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WATCHMAN'S IMPROVED **TIME DETECTORS**

12 and 24 Different Keys, with Safety Lock Attachments. U. S. Patents, 1875-76-77. Re-issue 1880.

CENTENNIAL EXHIBITION, 1876—Highest Award and Medal of Honor for Portability, SECURITY and general adaptation to the purpose intended.
AMERICAN INSTITUTE EXHIBITION, 1878—Medal of Superiority. 1879—Medal of Excellence. 1880—Diploma.
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CHICAGO, ILL., NATIONAL EXHIBITION FOR RAILWAY APPLIANCES, 1883—The only Medal for the most Complete and Perfect Instrument.

This Watchman's Time Detector contains all modern improvements. The only perfect instrument in the market. Warranted in every way. It cannot be tampered with successfully.

WARNING. Suit will be brought against all concerns selling or using Watchman's Time Detectors, infringing on my patents.

E. IMHAUSER,
206 Broadway, NEW YORK.

—The Indicator business of the well known Hine & Robertson Co., New York, has assumed such proportions that they have organized a separate department for that branch, which is sure to be an unqualified success in the hands of such an able and practical man as Mr. A. C. Lippencott, who has an established reputation among steam users as an expert in indicator work.

—C. B. Woodfuff was elected to succeed John T. McClendon, resigned, as secretary and treasurer of the Eagle & Phenix Mills Company, Columbus, Ga.

—Amos Osburn has been promoted from second hand to overseer of carding in the Victor Cotton Mill, Charlotte, N. C.

—W. B. Moore has accepted the position of superintendent of the Morrison & Reinhardt Mill, Stanley Creek, N. C.

—Frank Emery, formerly with the Worth Mfg. Company, Worthville, N. C., is now superintendent of the Odell Mfg. Co., Odell, N. C.

—A. Sheriff, superintendent with S. T. Willett, of Chambly, Que., has resigned and accepted a simular position with Messrs. Lomas & Sons, Sherbrooke, Que.

MILL NEWS.

Continued from Page 28.

Enlargements and Improvements.

Cotton.

—SOUTH CAROLINA, Fort Mill. The name of the Luna Cotton Mill has been changed to the Millfort Mill Co. It is owned by the same parties, with the exception of two new stockholders. They will increase their capital stock to $140,000 and put in 100 new looms. The incorporators are J. W. Ardrey, C. P. Culp, W. A. Watson, J. M. Spratt and P. E. Mull.

—VIRGINIA, Lynchburg. The Lynchburg Cotton Mill have issued preferred stock to the amount of $100,000, the majority of which has already been placed. This action was necessary on account of their increased business, and will enable them to enlarge their mill.

Woolen.

—ARKANSAS, Centre Point. J. A. Hughes will put additional machinery into his woolen mill.

—MAINE, Caribou. The Caribou Woolen Mill, T. T. Crockett & Son, props., are putting a new Leffel wheel into their woolen mill, and are making other extensive repairs.

—MAINE, Phillips. Hiscock & Atwood are making repairs to their woolen mill, and expect to start up in March.

—MARYLAND. Keyser. We are further informed that the building which A. C. Sherr, of Maysville, W. Va., has been building at this place at the woolen mill is completed, and he will manufacture blankets, flannels stocking yarns, all-wool half hose, etc. The mill is run by steam and has a dye house attached.

—VIRGINIA, Wytheville. The Wytheville Woolen & Knitting Mills Co. are preparing to make some improvements in their mills. They will build new boiler, picker and dye houses. They manufacture blankets, hosiery cassimeres, etc.

—WEST VIRGINIA, Martinsburg. Money has been advanced by the Improvement Building and Loan Association to be used in increasing the facilities of the woolen mill of W. H. Crawford. New and improved machinery will be placed in the mill at once.

Knit.

—MASSACHUSETTS, Watertown. Dalby & Co. have placed a number of new knitting machines in their mill. They manufacture silk and worsted underwear.

—ONTARIO, Merritton. S. Taylor & Sons, manufacturers of hosiery, will add a new set of cards to their mill for the manufacture of underwear.

—PENNSYLVANIA, West Chester. The West Chester Knitting Co. has ordered ten new knitting machines, which will considerably increase their output of stockings.

Silk.

—MASSACHUSETTS, Northampton. The J. N. Leonard Silk Co., have completed plans for enlarging the capacity of their dye house. Considerable new piping has been done and new vats ordered to be ready to meet the demands as soon as the spring trade opens.

Miscellaneous.

—VIRGINIA, Fredericksburg. The Virginia Silk Mills Co., recently incorporated with $50,000 capital stock, will increase its capacity. S. A. Wilder is president of the company.

Mills Starting Up.

Cotton.

—CONNECTICUT, Willimantic. Work was resumed in the mills of the Windham Cotton Mfg. Co., February 19, on full time.

—GEORGIA, Brunswick. The Kenyon Mfg. Co. has increased its facilities and enlarged its capital. The mills will be in operation in March.

—GEORGIA, Hartwell. Machinery is being placed in the Hartwell Cotton Mills and they will be started up at an early date.

—GEORGIA, Macon. The mills of the Bibb Mfg. Co. Nos. 1 and 2 have started up on full time.

—NEW BRUNSWICK, Moncton. The Old Dominion Cotton Mills, Ltd., which have been closed down for alterations and repairs, resumed operations March 5.

—NEW YORK, Warwick. The Fire Fabric Hose Co. will resume operations at once with a full force of help.

—NORTH CAROLINA, Durham. Operations have been resumed at the Commonwealth Cotton Mill, after a shut down of several months.

—NORTH CAROLINA, Raleigh. The Patterson Mfg. Co. have just completed their new mill and have started operations.

—PENNSYLVANIA, Columbia. Cleland, Campbell & Co. manufacturers of lace curtains, have started up after a several weeks' shut-down.

—SOUTH CAROLINA, Fork Shoals. The Fork Shoals Cotton Mill, owned by Dr. J. F. Latimer, has been leased by Messrs. Bramlett & Smith, who will put the mill in operation at once.

—TENNESSEE, Athens. The North Athens Cotton Mills, R. D. Van Dyke, proprietor, have started up. They have been idle for several months.

Woolen.

—CALIFORNIA, Santa Rosa. It is reported that the Santa Rosa Woolen Mill has been leased to a company of practical mill men, with the privilege of buying, who are making arrangements to put the mill in operation. They have sufficient capital to equip and operate the mill, and to buy when the time comes, but they ask that the citizens will raise $5000 bonus. The mill has been idle for six years and it will now be a three-set mill instead of a two-set as before.

—CONNECTICUT, Putnam. The Putnam Woolen Co. started up its mills March 8, after a shut down of about seven months.

—CONNECTICUT, Rockville. The Rock Woolen Mills, which have been closed for four weeks, have now started up on orders.

—KENTUCKY, Carrollton. The Carrollton Woolen Mills have been leased by W. F. Rowe, and are now in operation.

—MAINE, Lisbon. The Farnsworth Co. has started up its mills in part. They have been shut down since August. It is understood that they will make a different line of goods than heretofore.

—MAINE, Old Town. The Old Town Woolen Mills will start up March 5, with a cut-down of from 10 to 12 per cent. in wages.

—MAINE, Turner. The Turner Woolen Mills, which have been closed down for six months, have resumed work.

—MASSACHUSETTS, Auburn. The mills of the Stoneville Worsted Co., 7 set, started up in full on Monday February 19. They have been idle since August.

—MASSACHUSETTS, East Douglas. Work has been resumed at the woolen mill of W. E. Hayward & Co., with a reduction of 10 per cent in wages.

—MASSACHUSETTS, Hinsdale. The Hinsdale Bros. woolen mill was started up February 12, and it is understood that a reduction of 20 per cent was made in the wages.

—MASSACHUSETTS, Lawrence. The mills of Brown & Ackroyd will be started up March 5, running night and day.

—MASSACHUSETTS, Lowell. The No. 2 Mill of the Belvidere Woolen Mfg. Co. will start up on full time, with reduced wages, February 26.

—MASSACHUSETTS, Lowell. The mills of the Lowell Mfg. Co. have started up in part.

—MASSACHUSETTS, Northboro. The Woodside Mills, D. F. Wood & Son, have started up, with a ten per cent cut down.

—MASSACHUSETTS, Pittsfield. The Wm. E. Tillotson mills have started up in part, and it is thought that the entire mill will be running in a short time.

—MASSACHUSETTS, Pittsfield. The Pontoosuc Woolen Mfg. Co. started up on full time February 12, with a 15 per cent reduction in wages.

—MASSACHUSETTS, Southbridge. The Hamilton Woolen Co. started up their cotton and worsted departments February 19, and in a short time the whole establishment will be in operation.

—MASSACHUSETTS, Uxbridge. The mills of Scott & Wheelock, which were closed down in December, have now started up.

—MASSACHUSETTS, Uxbridge. The Hecla Mill started up February 27, after a shut down of six months.

—MASSACHUSETTS, Wales. The Berkeley Mills, H. F. Shaw, prop., will resume operations, after a long idleness. A 20 per cent reduction in wages will be made.

—MASSACHUSETTS, Webster. The mills of John Chase & Sons started up March 7, after being idle since December.

—NEW HAMPSHIRE, East Rochester. The Cocheco Woolen Mfg. Co. started up February 26 on full time, with a 10 per cent. reduction in wages.

—NEW HAMPSHIRE, Gonic. The Gonic Mfg. Co. has started up its mills on full time with a 10 per cent. reduction in wages.

—NEW JERSEY, Bridgton. The mills of the East Lake Woolen Co. have been started up, running night and day. They manufacture cassimeres, cheviots and suitings.

—NEW JERSEY, Camden. Howland Croft Sons & Co. started up their worsted mills at this place February 19.

—OHIO, Tiffin. The woolen mill of S. Myers & Sons, six set, has started up, after being shut down for seven weeks.

—PENNSYLVANIA, Norristown. Work has been resumed in the Norristown Woolen Mills, which have been shut down for several months.

—PENNSYLVANIA, Woolrich. John Rich & Bros. started up their woolen mills March 8.

—RHODE ISLAND, Glendale. William Orrell's woolen mill will start up March 12, after a shut down of several months. A 10 per cent. reduction will be made in wages.

—RHODE ISLAND, Pascoag. It is reported that the No. 2 woolen mill of A. L. Sayles & Sons has started up. It has been idle for about three weeks.

—RHODE ISLAND, Wood River Junction. The Wood River Mills, owned by W. A. Walton & Co. have resumed operations after several weeks' idleness. A 25 per cent. cut down was made in wages

—UTAH, Beaver. The Beaver Co-operative Woolen Mills are to start up after a long idleness.

—VERMONT, Proctorsville. The Proctorsville Mills, Taft, Burkank & Murdock, props., have resumed operations, after a shut down of nearly five months.

—WEST VIRGINIA, Wheeling. The woolen mills of J. W. Rigg & Son, which have been closed down for some time, will resume operations.

—WISCONSIN, West Superior. The West Superior Woolen Mill, formerly operated by E. J. Salt, has been leased to M. B. Coburn, who is now running the mill to its full capacity. Machinery has recently been put in for the manufacture of tweed cloth.

Knit.

—DELAWARE, Dover. The Dover Hosiery Co. has started up its mill in part after twelve months' idleness.

—MASSACHUSETTS, Linden. Collins' knitting factory, knit mittens, has started up again after a shut down of about two months.

—MASSACHUSETTS, Rockland. H. D. Smith & Co., manufacturers of hosiery, expect to resume operations shortly.

—MICHIGAN, Colon. The Lamb Knit Goods Co. have resumed operations.

—MISSISSIPPI, Enterprise. The Enterprise Knitting Mill has started up after a long shut down.

—NEW HAMPSHIRE, Lakeport. The hosiery mill of the H. H. Woods Co. will start up February 16, and will run on full time.

—NEW YORK, Amsterdam. The knitting Mills of the United Knitting Co. and the Liddle Bros. have started up; also the mills of L. E. Harrower, at Rockton.

—NEW YORK, Cohoes. Mill No. 1 of the Root Mfg. Co. has started up on samples. Two sets of cards have been started in Mill No. 2.

—NEW YORK, Hagaman's Mills. The Anchor Knitting Mills, Wm. M. Pawling, prop., have resumed operations.

—NEW YORK, Mechanicsville. The Mechanicsville Knitting Co. has started up its mills.

—NEW YORK, Schenectady. The Alpha Knitting Mill, 6 set, started up on full time February 26.

Silk.

—CONNECTICUT, Middletown. The silk mill of L. D. Brown & Son started up March 1, running on full time.

—CONNECTICUT, Winsted. The Winsted Silk Co. started up their mills on full time March 6.

—MASSACHUSETTS, Shelburne Falls. The silk mill of Mayhew & Wilkins will be started up February 26, with about one-half their usual number of help.

—NEW YORK, College Point, L. I. Openhym & Sons have acceded to the demands of the weavers for an increase of wages, and work was resumed at their mills March 5.

—NEW YORK, Newburgh. The Saxony Mfg. Co. will open the Donald Frame Silk Mills on March 5th, with a small number of hands, increasing as necessity requires.

—NEW YORK, New York. Hartlein & Schlatter, silk manufacturers, whose mills have been shut down owing to a strike among the weavers, have resumed, the company signing the scale of wages demanded by the strikers.

Mills Shutting Down.

Cotton.

—MASSACHUSETTS, Fall River. King Philip Mills Nos. 1 and 3 were shut down February 28.

—NEW BRUNSWICK, St. John. The New Brunswick Cotton Mills have shut down on account of some of the machinery breaking.

—NEW HAMPSHIRE, Newmarket. The No. 3 Mill of the Newmarket Mfg. Co. has shut down for an indefinite period.

—NORTH CAROLINA, Raleigh. The Hermitage Cotton Mills and the Boyd Mfg. Co. have shut down on account of the depressed condition of business.

Woolen.

—CONNECTICUT, Clark's Falls. The Clark's Falls Co. have shut down indefinitely.

—CONNECTICUT, Stafford Springs. The mills of Rawitzer & Bro. shut down February 19.

—CONNECTICUT, Stafford Springs. The Warren Woolen Co., which has been running full time on heavy kerseys, shut down March first.

—MAINE, Pittsfield. The Pioneer Woolen Mill, Robert Dobson & Co., props., has suspended operations for a few weeks.

—MAINE, Skowhegan. The Skowhegan Woolen Mills closed down March 1, for an indefinite period.

—MASSACHUSETTS, Lawrence. The Washington Mills are again shut down, this time owing to a strike among the operatives against a reduction in wages.

—MASSACHUSETTS, Lowell. The Middlesex Co. have closed down their woolen mill.

—MASSACHUSETTS, Millville. The mills of the Lawrence Felting Co. have shut down for an indefinite period. They manufacture felt boots, rubber linings, etc.

—MASSACHUSETTS, Newton. The mills of the Nonantum Worsted Co. have shut down.

—MASSACHUSETTS, Northboro. The Northboro Woolen Mills have suspended operations until the tariff is settled.

—NEW YORK, Schaghticoke. The Schaghticoke Woolen Co., a 12-set plant, has closed its mills for an indefinite time, owing to lack of orders.

—PENNSYLVANIA, Philadelphia. The yarn mills of Robert Henry, Howard and Berks Streets, have been shut down indefinitely.

—PENNSYLVANIA, Norristown. J. Morton Brown & Co. have closed down their mills.

Knit.

—INDIANA, Elkhart. The Eagle Knitting Mill is shut down and is to be sold out.

—NEW YORK, Cohoes. The Fashion Knitting Mill, J. C. Sanford, prop., which has been running on short time, has shut down entirely.

—NEW YORK, Little Falls. The Astoronga Knitting Mills, J. J. Gilbert, prop., shut down February 10, and the mills of the Little Falls Knitting Co., a ten-set plant, are expected to close in about a week.

Silk.

—NEW JERSEY, Phillipsburg. The mills of the Standard Silk Co. have closed down for an indefinite time. The shut-down was caused by a strike among the weavers against a 12 precent. reduction in wages.

Fires.

—MANITOBA, Wardsville. The flax mill of John Heath has been burned down. Loss $4000. No insurance.

—MASSACHUSETTS, Fall River. The Stevens Mfg. Co. was damaged by fire to the extent of $10,000 on February 11.

—NEW HAMPSHIRE, Marlboro. The picker house of the Monadnock Blanket Mills, was recently destroyed by fire. Loss about $3000. No insurance. A new building will be erected at once.

—NEW JERSEY, Passaic. A building occupied by the Algonquin Woolen Co. was recently destroyed by fire, causing a loss of about $3000.

—PENNSYLVANIA, West Grove. The West Grove Knitting Works were totally destroyed by fire recently. The building and contents were insured, but for what amount could not be ascertained.

Failures and Suspensions.

—IOWA, Bloomfield. The Bloomfield Woolen Mills have made an assignment to J. W. Law. The liabilities are $17,000; assets $40,000(?). It is expected that the mills will be started up as soon as the company is in a condition to operate them.

—NEW HAMPSHIRE, Union. The Star Woolen Mfg. Co. have made an assignment. The liabilities are placed at about $28,000 and the assets at about $29,000.

—NEW JERSEY, Paterson. The effects of the Columbia Dye Works in the Waverly Mill have been sold to satisfy a judgment of $1150.

—NEW YORK, Auburn. Samuel Laurie, president of the Auburn Woolen Co., of Rochester, N. Y., and J. W. Martin have been appointed receivers of the company, in the matter of its voluntary dissolution. The company has been established thirty years and has a capital stock of $200,000.

—OHIO, Hillsboro. The woolen mills of Elliritz Bros., have been closed on judgments amounting to over $12,000.

—PENNSYLVANIA, Philadelphia. Alexander M. Patton, manufacturers of dress goods, flannels and shirtings, made an assignment February 12, to Joseph DeForrest Junkin. The liabilities of the company are estimated at about $40,000 and it is said that the assets will cover the amount.

Facts and Gossip.

—ARKANSAS, Judsonia. The Judsonia Woolen Mills have been sold to J. J. Bell, of Searcy, who will move the plant to that city and operate it.

—CONNECTICUT, Killingly. The Dayville Woolen Co. has been reorganized with a capital stock of $50,000. The stock is held by Congressman Charles Russel, Frank Bennett and Charles Bond. This is probably a reorganization of the Sabin L. Sayles Co.

—KENTUCKY, Louisville. It is expected that the New Albany Woolen Mill Co. will reorganize. The creditors of the company have held a meeting regarding the settlement of its affairs, and nearly all consented to the compromise offered by the company.

—MASSACHUSETTS, South Hadley Falls. The sale of the mills of the Glasgow Co. took place February 15. The new company is called the Glasgow Mfg. Co., and will have a capital of $150,000. H. R. Hinckley is president.

—MASSACHUSETTS, Spencer. The property of the Westville Mills has been bid in by the Ware Savings Bank, which held a mortgage on it.

—NEBRASKA, Kearney. It is stated by the manager of the Kearney Cotton Mill Co. that the mill will be started up in a short time, as soon as needed repairs can be made. This mill has 15,000 spindles and will be run to its full capacity. This plant has been shut down for a few months past, and it will be remembered was sold December 13 to an Eastern syndicate of which Stephen A. Jencks was at the head.

—NEW HAMPSHIRE, Laconia. Morin & Co. have leased the rear of the building formerly occupied by the Advocate and will continue the manufacture of hosiery.

—NEW HAMPSHIRE, Wilton. The mill formerly owned by the Colony Mfg. Co., has been bought by C. J. Amidon & Sons, of Hinsdale.

—NEW JERSEY, Hammonton. The firm of Cottrell & Wolfenden, manufacturers of seamless hosiery, at Camden and at this place, who were embarrassed last summer and sold at sheriff's sale, have been reorganized as the Hammonton Knitting Co. The new company is composed of the creditors of the old firm, and Messrs. Cottrell & Wolfenden will continue in charge.

—NORTH CAROLINA, King's Mountain. The Crowder's Mountain Cotton Mills are nearly completed and are in the market for 100 plain looms. They will be started up about April first. P. S. Baker is treasurer and general manager.

—NEW YORK, Glens Falls. The real estate of the Fort Ann Woolen Mill Co. has been sold at sheriff's sale for $7025. The property was purchased by King & Ashley of Glens Falls.

—NEW YORK, Johnstown. It is understood that the Royal Knitting Co. is about to be changed to a stock company, two of the present members wishing to retire. The company is perfectly solvent, and the change is made simply to comply with the law, which requires at least five persons to form a corporate body.

—ONTARIO, Glenwilliams. The firm of Sykes & Ainley have been incorporated into the Sykes & Ainley Mfg. Co., Ltd., with capital stock of $100,000. They manufacture tweeds, blankets, etc.

—PENNSYLVANIA, Norristown. The Keystone Hosiery Co. have abandoned their branch factory at Phœnixville, and are having their machinery brought to this place.

—RHODE ISLAND, Newport. The Newport Elastic Fabric Co. proposes to resume work, the stockholders having decided that it was advisable to bond the work rather than remain idle longer. The bond is for $9500 and the members of the company have gone upon it.

—RHODE ISLAND, Pawtucket. We learn that the name of the Potter & Atherton Machine Co. will soon be changed to the A. T. Atherton Machine Co., Mr. Potter having withdrawn to connect himself with the new Howard & Bullough Machine Co., which will soon begin the erection of their plant.

—TENNESSEE, Nashville. A new company called the Phœnix Cotton Mills has applied for a charter. This is a reorganization of the Nashville Cotton Mills, who, as we recently reported, went into voluntary liquidation. The property will be sold February 20, and will be bought in by the new company.

—TEXAS, Denison. The Denison Cotton Mill has been sold to D. J. M. Ford, ex-mayor of Kansas City, for $30,000 to satisfy a judgment for debt.

When working under very heavy duty, put a petcock on the suction pipe close to the pump between the vacuum chamber (should there be one) and the pump, and by admitting a small quantity of air, keep the air chamber supplied, and the surplus air, passing with the water through the discharge pipe, converts the otherwise solid body of water into an elastic column, preventing water hammering and consequent shock on pump and pipes.

***

Do not use tallow in the steam cylinder, but a little of the best refined mineral, sperm or lard oil. Any oil that corrudes or gums the working parts is unfit for use.

***

Use as few bends and valves as possible, and run every pipe in as direct a line as practicable, and where convenient use full round bends rather than elbows. Valves, returns and elbows increase friction more rapidly than length of pipe, and no pump can work satisfactorily that does not have a full supply of water.

***

A vacuum chamber upon the suction pipe, close to the pump, is always an advantage, and on long lines of pipe or on pumps running at a high rate of speed, is *absolutely necessary*. Their utility consists in causing a steady and uniform flow of the fluid through the suction pipe, and thus preventing "pounding" or water hammering, which (without one) is always incident to long suctions.

Novelty Knitting Machine Co.,
MANUFACTURERS OF
AUTOMATIC CHECKERS, VERTICAL STRIPING MECHANISM.
SPRING NEEDLE KNITTING MACHINERY,
AND OTHER NOVELTY ATTACHMENTS
BURR WHEELS With Removable Hardened Wings, Shafting, Hangers, Pulleys, Etc.
F. L. WIGGIN, Proprietor, LOWELL, MASS.

READY REFERENCE LIST

FOR

Textile Products and Raw Stock.

This index is intended to be of special value for instant reference, as to sources of supply for any desired line of domestic dry goods. It is our intention to have in each line a good representative list of the principal, and also smaller manufacturers, and to increase the list largely, meantime securing the greatest accuracy possible.

For smaller and odd lines it will be made of special value, and new headings added as experience and contact with buyers may suggest.

It is our intent to make this of positive value to both buyer and manufacturer or commission merchant, and all suggestions looking to increasing its usefulness will be carefully considered.

Correspondence solicited with those who desire their addresses to appear.

COTTON GOODS.

Awning Stripes.

Sibley Mfg Co, Augusta, Ga.

Batting.

Massasoit Mfg Co, Fall River, Mass.

Cheviots.

Slatersville Mills, Slatersville, R. I.

Cotton Blankets.

Tremont & Suffolk Mills, Lowell, Mass.

Colored Cotton Goods.

Barnaby Mfg Co, Fall River, Mass.
Lewiston Mill Co, Lewiston, Me.

Corset Nets, Summer.

Wachusett Mills, Worcester, Mass.

Denims.

Pemberton Co, Lawrence, Mass.
White Bros, Winchendon Springs, Mass.

Domets, Plain and Fancy.

Eastwood Cotton Mill, Eall River, Mass.
Tremont & Suffolk Mills, Lowell, Mass.

Domets. F. M. D.

Pemberton Co, Lawrence, Mass.

Fancy Cotton Goods.

Berkshire Cotton Mfg Co, Adams, Mass.
Potomska Mills, New Bedford, Mass.
Wachusett Mills, Worcester, Mass.

Fancy Embroidery Fabrics.

Wachusett Mills, Worcester, Mass.

Fine Shirtings and Dress Fabrics

Aberfoyle Mfg Co, Chester, Pa.
Appleton Co, Lowell, Mass
Williamsville Mfg Co, Killingly Ct.

Flannels, Cotton.

Elizabeth Poole Mills, Taunton, Mass.
Hamilton Mfg Co, Lowell, Mass.
Tremont & Suffolk Mills, Lowell, Mass.

Flannels, Hathaway.

Methuen Co, Methuen, Mass.

Ginghams.

Slatersville Mills, Slatersville, R. I.

Lawns.

Potomska Mills, New Bedford, Mass.

Lenos.

Pequot Mills, Montville, Ct.
Wachusett Mills, Worcester, Mass.

Machinery Wipers.

Franklin Cotton Mfg. Co., Franklin, Mass.
Massasoit Mfg Co, Fall River, Mass.

Outing Cloth.

Tremont & Suffolk Mills, Lowell, Mass.

Prints.

Allen's Print Works, Providence, R. I.
American Print Works, Fall River, Mass.
Cocheco Print Works, Dover, N H.
Dutchess Co, Wappinger's Falls, N Y.
Eddystone Mfg Co, Chester, Pa.
Hamilton Mfg Co, Lowell, Mass.

Prints.

Merrimack Print Wks, Lowell, Mass.
Pacific Mills, Lawrence, Mass.
Passaic Print Works, Passaic, N J.
Windsor Co, N Adams, Mass.

Sateens.

Berkshire Cotton Mfg Co, Adams, Mass.
Metacomet Mfg Co, Fall River, Mass.
Potomska Mills, New Bedford, Mass.
Salmon Falls Mfg Co, Salmon Falls N H.

Scrims.

Wachusett Mills, Worcester, Mass.

Skirts, Fancy.

Methuen Co, Methuen, Mass.

Tickings.

Hamilton Mfg Co, Lowell, Mass.
Pemberton Co, Lawrence, Mass.

Wide Cotton Goods.

Wampanoag Mills, Fall River, Mass.

WOOLEN GOODS.

Beavers.

Collins, M, Woolen Mills, Collinsville, Mass.

Blankets.

Cordaville Woolen Co, Cordaville, Mass.
New Albany Woolen & Cotton Mills, New Albany, Ind.
Northern Ohio Blanket Mills, Cleveland, O.
North Star Woolen Mill, Minneapolis, Minn.
Rock Falls Woolen Co, Middletown, Ct.
Winthrop Mills Co, Winthrop, Me.

Carriage Linings.

Dustin Island Woolen Mill, Penacook, N. H.

Cashmerettes.

Haile & Frost Mfg Co, Hinsdale, N H.
Hinsdale Woolen Mill, Hinsdale, N H.

Cassimeres.

Blackinton, S, Wm Co, Blackinton, Mass.
Chase, Jno & Sons, Webster, Mass
Devonshire Mills, Goff's Falls, N H.
Old Kentucky Woolen Mills Co, Louisville, Ky.
Rock Mfg. Co, Rockville, Ct.
Sawyer Woolen Mills, Dover, N. H.

Cheviots.

Sawyer Woolen Mills, Dover, N. H.
Slater Woolen Co, Webster, Mass.
Talbot Mills, N. Billerica, Mass.

Dress Goods.

Atlantic Mills, Providence, R I.
Brown & Ackroyd, Lawrence, Mass.
Sagehomme & Byers, No Andover, Mass.
Washington Mills, Lawrence, Mass.

Felts.

City Mills Co, City Mills, Mass.
Dolge, Alfred & Son, 110 East 14th St, New York.
Piqua Wm Mills (for paper mks), Piqua, O.
Union Mfg Co, Norwalk, Ct.

Flannels.

Allen, L L & Bros, Rochester N Y, and 90 Franklin St, N Y.
Hayward, H T, Franklin, Mass.
Jamestown Woolen Mills, Jamestown, N J.
Kay, Thos, Woolen Mill Co, Salem, Ore.
Kent, Thomas, Mfg Co, Clifton Heights, Pa.
Knoxville Woolen Mill, Knoxville, Ia.
Louisville Woolen Mills, Madison, Ind.
Middlesex Co, Lowell, Mass.
Mascoma Flannel Co, Lebanon, N. H.
Olney, Geo W, Cherry Valley, Mass.
Slater Woolen Co, Webster, Mass.
Stirling Mills, Lowell, Mass.
Talbot Mills, N Billerica, Mass.

Horse Blankets, Etc.

Monadnock Blanket Co, Marlboro, N H.
Ray Fabric Mills, Franklin, Mass.
Riley, Wm B, & Co, 507 Arch St, Phila, Pa.
Rockfall Woolen Co, Middletown, Conn.
Troy Blanket Mills, Troy, N H.

Jeans Pants.

Henderson Woolen Mills, Henderson Ky, "Celebrated Bull Breeches."

Kerseys.

Ashland Mfg Co, Wetheredville, Md.
Bobson, Jno & Jas Co, 28 N Front St, Phila
New Albany Woolen & Cotton Mills, New Albany, Ind.
Worumbo Mills, Lisbon Falls, Me.

Meltons.

Globe Mills, Utica, N Y.
Germania Mills, Holyoke, Mass.
Ottaqueechee Woolen Co, N Hartland, Vt.
Pomeroy, Theo L, Pittsfield, Mass.

Military Goods.

Sawyer Woolen Mills, Dover, N H.
Charlottesville Wln Mill, Charlottesville, Va.

Overcoatings.

Georges River Mills, Warren, Me.
Washington Mills, Lawrence, Mass.
Worumbo Mills, Lisbon Falls, Me.

Repellants.

Cumberland Mills, Lewiston, Me.
Hudson River Woolen Mills, Newburgh, N Y.
Robinson Mfg Co, Oxford, Me.
Winthrop Mills Co, Winthrop, Me.

Satinets.

Abbot Woolen Mills, Abbot P O, Me.
Aldrich, C T, Milbury, Mass.
Bigelow & Darling, Worcester, Mass.
Caryville Mills, Caryville, Mass.
Darling, Newton, Cherry Valley, Mass.
Kauffman, W H, Athol, Mass.
Quinapoxet Woolen Mills, Quinapoxet, Mass.
Tebo, D E, Athol, Mass.
Thayer, E D, Jr, Worcester, Mass.
Wood, D F, Northboro, Mass.

Worsted Suitings and Trouserings.

Chase, Jno & Sons, Webster, Mass.
Fulton Worsted Mills, Oswego, N Y.
Hockanum Co, Rockville, Ct.
Lymansville Co, of 61 Leonard St, N Y.
National Worsted Mills, Providence, R I.
Perseverance Worsted Co, Woonsocket, R I. C B Fillebrown & Co, Selling Agts, Boston and New York.

Worsted Suitings and Trouserings.

Riverside Mills. Providence, R I.
Rock Mfg Co. Rockville, Ct.
Sawyer Woolen Mills, Dover, N H.
Simson & Kirkaldy, Woonsocket, R I.
Singleton Worsted Co, Franklin, Mass.
Springville Mfg Co, Rockville, Ct.
Tremont Worsted Mills, Woonsocket, R I
Washington Mills, Lawrence, Mass.

Union Cass.

Taft, McKean & Co, Caryville, Mass.
Douglass Woolen Co, E Douglass, Mass.
Jefferson Mfg Co, Jefferson, Mass.
Northboro Mills, Northboro, Mass.
Logansport Woolen Mill, Logansport, Ind.
Manchester Woolen Mills, Manchester, Ia.
Hoosier Woolen Co, Indianapolis, Ind.

KNIT GOODS.

Athletic and Sporting Goods.

Roper, R G & Co, Highlandville, Mass.

Cardigan Jackets.

Baron, S & Co, 90 Franklin St, New York City.
Greaves, Thos, Germantown, Pa.
Hellmer, M, 243 Poplar St, Myk, Phil.
Mottram, Thos, Germantown, Pa.
Peaberdy, Geo, Penn St, Germantown, Pa.
Springthorpe, Isaac, Germantown, Pa.
Townsend, Edward, 2421 Waterloo St, Phil.
Woodcock Bros, Germantown, Pa.
Yates, Wm, 1640 N Second St, Phil.

Children's Seamless Ribbed Waists.

Nazareth Mfg Co, Nazareth, Pa.

Combination Suits.

Holmes Co, 109 Kingston St, Boston, Mass.

Eider Down.

French & Ward, Stoughton, Mass.

Fancy Knit Flannels.

French & Ward, Stoughton, Mass.

Fancy Knit Goods.

Bohne Knitting Works, Jacksonville, Ill.
Barrows, David & Co, Nicetown, Phil.
Reed, Mrs S, Richmond, Mich.
Why Bros & Co, Germantown, Pa.

Hosiery.

Alden Knitting Mills, 138 Julia St, N O, La.
Contoocook Mills Co, Hillsboro Bridge, N H
Ellis, G W, 140 Race St, Phila, Pa.
Lowell Hosiery Co, Lowell, Mass.
Pierce Thos A & Co, 1720 N 8th St, Phila.
Renfrew Mfg Co, Adams and Coral Sts, Philadelphia, Pa.
Sulloway Mills, Franklin, N H.
Taylor, A, 6120 Pine St, W Phila, Pa.

Knit Wrists for Glove Mfrs,

W D Gregory, 17 Kingsboro Ave, Gloversville, N Y.

Gloves, Mitts and Mittens.

Amsterdam Silk Mills, Amsterdam, N Y.
Armstrong, Wm, Highlandville, Mass.
Berkson, J & Co, 278 E Madison St, Chicago.
Bonsor, Wm, Germantown, Pa.
Conyers, Button & Co, Germantown, Pa.
Dazell, M, Germantown, Pa.
Gloversville Hair Co. Ltd, Gloversville, N Y. (Also fulled mittens.)
Hall, L C Jr, & Co, silk & wstd, 6th & Arch, Phila, Pa.
Keefer, J N, Camillus, N Y.
Kokomo Knitting Co, Kokomo, Ind.
Lyons, Jas, Highlandville, Mass.
Michigan Knitting Co, Lansing, Mich.
Royal Knitting Co, Johnstown, N Y.
Western Knitting Mills, Detroit, Mich.

Mittens, Ladies' and Children's.

White, Isaac, Highlandville, Mass.

Mittens, Leggings and Equestrian Tights.

Max Lowenthal, Rochester, N Y.

Overshirts.

Groat, Edwin, Hudson, N Y.
Liddle Jno & W A, Amsterdam, N Y.

Ribbed Hosiery.

Chicago, Rockford Hosiery Co, Kenosha, Wis, Rockford, Ill.
Nazareth Mfg Co, Nazareth, Pa.

Scotch Caps.

Bayliss, Alfred, Utica, N Y.
Lynch Scotch Cap Co, Utica, N Y.
Mang G, Winona, Minn.
Northrop, D W, Utica, N Y.

Silk Hosiery.

Belding Bros, Northampton, Mass.
Burpee, A R, Lakeport, N H.
Dalby, Thos. Watertown, Mass.
Friedman, H & Co, 29 Bank St, Cleveland, O.
Griswold, D C & Co, 67 Chauncy, Boston.
Medlicott, Morgan & Co, Springfield, Mass.
Nonotuck Silk Co, Florence, Mass.

Silk Mittens.

Wye Bros, Needham, Mass.

Surgical Elastic Goods.

Gorse, Wm, Highlandville, Mass.

Sweaters.

Hub Mfg & Knitting Co, 119 Summer St, Boston.
Toone, Wm E, Highlandville, Mass.

Underwear.

Atlantic Knitting Co, Cohoes, N Y.
Astoronga Knitting Mills, Little Falls, N Y.
Anchor Hosiery Co, office 74 Franklin St, N Y
Bennington Knitting Mills, Bennington, Vt.
Bradford, H E & Co, Bennington, Vt.
Bailey, Herbert, Claremont, N H.
Clark & Holsapple Mfg Co, Cohoes, N Y.
Commercial Knitting Mills, Troy, N Y.
Contoocook Mills Co, Hillsbbro Bridge, N H.
Conyers, Hutton & Co, Germantown, Pa.
Crane & Waters Co, Milbury, Mass.

Underwear.

Cooper Mfg Co, Bennington, Vt.
Gardiner & Warring, Amsterdam, N Y.
Greene Knitting Co, Amsterdam, N Y.
Jaros Hygienic Underwear Co, 831 Broadway, New York.
Jones, Lewis Bristol, Pa.
Lawrence Mfg Co, Lowell, Mass.
Miami Valley Knig Mills, I & c, Hamilton, O.
Mosely & Co, Highlandville, Mass.
Piqua Hosiery Co, ladies & children, Piqua, O
Taylor, Bramley & Co, Chicopee Falls, Mass.
Valentine Knitting Co, Bennington, Vt.
Victor Knitting Mills, Little Falls, N Y.
Waterford Knitting Co, Waterford, N Y.
Way Mfg Co, 2008 N Second St, Phil.

Underwear, Men's.

Titus Shead Co, Little Falls, N Y.

Underwear, Infant's and Uuion Suits.

Max Lowenthal, Rochester, N Y.

Underwear, Men's and Women's Medium and Light Weight.

Harder Knitting Co, Hudson, N Y. Our specialty is 14 lbs. white Merino highest grade. Goods sold to Jobbers only. No agents. Address all inquiries direct to mill.

SILK GOODS.

Broad Silks.

Bentley, Thomas W & Co, Paterson, N J.
Cheney Bros, S Manchester, Ct.
Dexter, Lambert & Co, Paterson, N J.
Dorothy & Wadsworth Paterson, N J.
Fairhurst & Co, Dale Ave, Paterson, N J.
Gallant Bros, 49 Godwin St, Paterson, N J.
Green, M J, 58 Railroad Ave, Paterson, N J.
Hess, Goldsmith & Co, office, 89 Grand St, N Y.
Haskell Silk Co, Westbrook, Me.
Hamil & Booth, Paterson, N J; Of 68 Grand St, N Y.
Natchoug Silk Co, Willimantic, Ct.
Pelgram & Meyer, office, 60 Greene St, N Y.
Rhenania Mills, office, 45 Greene St, N Y.
Strange, The Wm Co, Paterson, N J.
Simon, E & H, Union Hill, N J; Of, 57 Greene St, N Y.
Smith, George W Silk Co, Lakeview, N J.
Summit Silk Mfg Co, Summit, N J.

Braids, Trimmings, Etc.

Cheney Bros, S Manchester, Ct.
Friedburger S, 1227 Callowhill St, Phil, Pa.
Natchoug Silk Co, Willimantic, Ct

Knitting and Thread Yarns.

Champlain Silk Mills, Whitehall, N Y.

Organzines and Trams.

Cheney Bros, S Manchester Ct.
Saquoit Silk Mfg Co, 76 Chauncy St, Boston

Ribbons.

Cheney Bros, S Manchester, Ct.
Dodds, John, Paterson, N J.
Loth, Joseph & Co, 65 Greene St, N Y.
Rhenania Mills, office, 45 Greene St, N Y.
Strange, The Wm Co, Paterson, N J.
Weddeigen, Louis & Co, 474 Broom St, N Y

Satins.

Cheney Bros, S Manchester, Ct.
Haskell Silk Co, Westbrook, Me.

Upholstery Goods.

Horstmann, Wm H & Sons, 500 Cherry St, Phila, Pa.
Hoyle, Harrison & Kaye, Lehigh Av, Phila.
Hunter, W, Jr & Co, Mascher, York St, Phila.
Lyons Silk & Tape Co, Paterson, N J.
Nepaul Silk Tap Mills, 400 Cambria St, Phila.

Upholstery Trimmings.

Maguire, Wm J, 39-41 No. 5d St, Camden, N J.

Sewings and Twists.

Athol Silk Co, Athol, Mass.
Brown, L D & Son, Middletown, Ct.
Champlain Silk Mills, Whitehall, N Y.
Conant, H E, Contoocook, N H.
Griswold Worsted Co, 332 Chestnut St, Phila.
Leonard, Jos N, Silk Co, Northampton, Mass.
Natchoug Silk Co, Willimantic, Ct.
Nonotuck Silk Co, 72 Green St, New York.
Saquoit Silk Mfg Co, 76 Chauncy St, Boston.
Walmsley, Philip, 34 Green St, N Y.

Boston Finishing Works

WILLIAMSTOWN, MASS.

BLEACHERS, DYERS AND FINISHERS

Of Pure Finish Shirtings, Sheetings, Canton Flannels and Filled Goods. Also Silesias, Satteens, Corset Jeans, Cambrics, Sleeve Linings, Pocketings, Flannelette, and all descriptions of Dyed Goods.

NAPPING A SPECIALTY.

Being equipped with the French and other Foreign and Domestic Napping Machines, we are prepared to give any kind of Nap required, including the French Flannel Finish.

Silk Throwsters.

Bethlehem Silk Co, Bethlehem, Pa.
Cooper, Richard, Market St, Paterson, N J.
MacKay & Rowson, Barnert Mill, Paterson,
Neuburger Silk Co, office, 96 Greene St, N Y.
Post Throwing Co, Granite Mill, Paterson
Ramsay & Gore Mfg Co, Paterson, N J.
Rockwell, R & Son, Matteawan, N Y.
Ryle, John C & Co. stroudsburg, Pa.
Ryle Wm, & Co, 54 Howard St, N Y.
Seaton & Baines, Allentown, Pa.
Strauss, F A, 93 Greene St, N Y.
Taylor, James, 116 River St, Paterson, N J.
Turner, A G, Willimantic, Ct.

MISCELLANEOUS.

Burlaps.

Logie, Alex, & Co, 56 Worth St, N Y.
Rogers, Gorham, & Co, 20 Federal St, Boston.

Clothes Lines.

Boscowan Mills, Penacook, N H.

Crash, Linen.

Stevens Linen Wks, Webster, Mass.

Fish Lines.

Gates, Israel, Canonchet, R I.
Lawrence Line Co. Lawrence, Mass.
Meyer, John C & Co, 289 Devonshire St Boston
Pawtucket Braided Line Co, Pawtucket, R I.

Felt Shoes and Slippers.

Doige, Alfred.
Matteawan Felting Co, Easton, Pa.

Fire Hose.

Boston Woven Hose & Rubber Co, Cambridgeport, Mass.
Eureka Fire Hose Co, Henry and Cranberry Sts, Brooklyn, N Y.
Fabric Fire Hose Co. Warwick, N Y.

Hair Cloth.

Pawtucket Hair Cloth Co, Pawtucket, R I.

Hammocks and Horse Fly Nets.

F. A. Langewald & Son, Willimansett, Mass.

Lacings for Knit Goods.

Hepner & Horwitz, 84 Leonard St, N Y.

Narrow Fabrics.

Krout & Fite, 2632-40 Mascher St, Phila.

Pearl Buttons.

Bloomenthal, B & Co. 396 Broadway, NY.
Crouse Hy W, 347 Broadway, N Y.
Webb, Jos, Nassau Works, Newark, N J.
Whatten, Newey & Whatton, Nassau Works, Newark, N J.

Tapes and Braids.

Chadburn & Moore, Springfield, Mass, and 130 Bedford St., Boston.
Fleming & Chapin, 215 Church St, Phila.
Witter, H M, & Co, Worcester, Mass.

Webbing.

Excelsior Web and Tape Co, Hop River, Ct.
Witter, H M. & Co. Worcester, Mass.

Wicking (Ball).

Massasoit Mfg Co. Fall River, Mass.

YARNS, THREADS, ETC.

Banding.

Boscowen Mills, Penacook, N H.
Heywood, M, & Co, Fall River, Mass.
Moore, C, 12 S 5th St, Phila.
Small Bros, Fall River, Mass.
Whittier Cotton Mills, Lowell. Mass.

Carpet Yarns.

Globe Cotton Mills, Augusta, Ga.

Colored Cotton Yarns.

Santord Spinning Co, Fall River.

Cotton Warps.

Bennett & Van Valkenburg, Athol, Mass.
Blythe, R A, 114 Chestnut St, Phila.
Buckingham & Paulson, 83 Leonard St, N Y.
Chadwick, Jas, & Bro, Ltd, 503 Broome St, N Y
Fleming & Chapin, 215 Church St., Phila. Pa.
Grant Yarn Co, Fitchburg, Mass.
Greene & Daniels Mfg Co, Pawtucket, R I.
Harrison Yarn & Dyeing Co, Pawtucket, R I.
Howland Mills Corp, New Bedford, Mass.
Rhodes, John, Warp Co, Milbury, Mass.
Thompson, Sidney, 66 Grand St, N Y.
Whittier Cotton Mills, Lowell, Mass.

Embroidery Yarns.

Champlain Silk Mills, Whitehall, N Y.

Fine Cotton Yarns.

Buckingham & Paulson, 83 Leonard St, N Y.
Chakwick, Jas & Bro Ltd, 503 Broome St, N Y
Globe Yarn Mills, Fall River, Mass.
Greene & Daniels Mfg Co, Pawtucket, R I.
Hadley Co. 95 Milk St, Boston.
Howland Mills Corp, New Bedford, Mass.
Kerr Thread Co, Fall River, and 29 Mercer St, N Y.
Littlefield Mfg. Co. Pawtucket, R I.
New Bedford Mfg Co, New Bedford, Mass.
Orswell Mills, Fitchburg, Mass.
Strauss, F A, 93 Greene St, N Y.
Thompson, Sidney, 66 Grand St, N Y.
Wilkesbarre Lace Mfg. Co., Wilkesbarre, Pa.

Fire Hose Cord.

Boscowen Mills, Penacook, N H.
Whittier Cotton Mills, Lowell, Mass.

Glazed Yarns.

Blodgett & Orswell, Pawtucket, R. I.
Chadwick, Jas & Bro, Ltd, 503 Broome St, NY.
Kerr Thread Co, Fall River and 29 Mercer St, N Y.
Warren, W, Thread Wks, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.

Harness Twines.

Chadwick, Jas & Co, Ltd, 503 Broome St, N Y.
Hadley Co, 95 Milk St, Boston.
Kerr Thread Co Fall River, and 29 Mercer St, N Y.
Moore, C, 12 S 5th St, Phila.
Whittier Cotton Mills, Lowell, Mass,

Hosiery and Knitting Yarns.

Boscowen Mills, Penacook, N H.
Chadwick, Jas & Bro, 503 Broome St, N Y.
Cutler Mfg Co, Warren, R I.
Globe Yarn Mills, Fall River, Mass.
Goodwill & Ashworth, Jamestown, N Y.
Grant Yarn Co, Fitchburg, Mass.
Greene & Daniels Mfg Co, Pawtucket, R I.
Jenckes, E, Mfg Co, Pawtucket, R I.
Kerr Thd Co, Cop Singles, Fall River, Mass.
Littlefield Mfg. Co. Pawtucket, R I.
Mason, Wm, Mfg Co, Providence, R I.
Nemasket Mills, Taunton, Mass.
Regan, Jas J, Rockville, Ct.
Orswell Mills, Fitchburg, Mass.
Rotch Spinning Corp, New Bedford, Mass.
Sanford Spinning Co, Fall River,
Winterbottom, Hyde & Co, 223 Chestnut St, Phila.
Warren, W, Thread Wks, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.
Wilkesbarre Lace Mfg. Co., Wilkesbarre, Pa.

Jute Yarns.

Lane, J H, & Co, 110 Worth St, N Y.

Lisle Threads.

Chadwick, Jas & Co, Ltd, 503 Broome St, N Y.
Warren, W, Thread Wks, Westfield, Mass.

Novelty Yarns.

Sanford Spinning Co, Fall River, Mass.

Tinsels, Silk Noil and Fancy Yarns.

Cranston Worsted Mills, Bristol, R I.
Strauss, F A, 93 Greene St, N Y.
Thompson, Sydney, 66 Grand St, N Y.

Silk Yarns.

Champlain Silk Mills, Whitehall, N Y.
Cheney Bros, Manchester, Ct.
Griswold Wstd Co, Ld, 322 Chestnut St, Phila.
Maclarlane & Co, 81 Grand St, N Y.
Walmsley, Phillip, 34 Green St, N Y.
Wm Ryle & Co, 54 Howard St, N Y.
Saquoit Silk Mfg Co, 76 Chauncy St, Boston.
Taff, Alfred, 69 Mercer St, N Y
Thompson, Sydney, 66 Grand St, N Y.

Threads.

Chadwick, Jas, & Bro, 503 Broome St, N Y.
Greene & Daniels Mfg Co, Pawtucket, R I.
Hadley Co, 95 Milk St, Boston.
Kerr Thread Co, Fall River, and 29 Mercer St, N Y.
Moore, C, & Co, 12 S 5th St, Phila.
Warren, W, Thread Wks, Westfield, Mass.

Tussah and Chappe,

Strauss, F A, 93 Greene St, N Y.
Thompson, Sydney, 66 Grand St, N Y.

Twines.

Boscowen Mills, Penacook, N H.
Lord, E W & Co, Kennebunk, Me.
Ware, Bruce R & Co, 200A Devonshire St, Boston, Mass.

Worsted Yarns.

Abegg & Rusch, 90 & 94 Grand St, N Y.
Allegheny Worsted Mills, Allegheny and Trenton Aves, Phila, Pa.
Goodwill, & Ashworth, Jamestown, N Y.
Ball, Thomas H, 236 Chestnut St, Phila, Pa.
Continental Worsted Mills, 2100 Washington Ave, Phila.
Cranston Worsted Mills, Bristol, R I.
Johnston & Farie, 132 South 3d St, Phila.
Griswold Worsted Co, 322 Chestnut St, Phila.
Landenburgh Wstd Mills, Landenburgh, Pa.
Providence Worsted Mills, Providence, R I.
Strauss, F A, 93 Greene St, N Y.
Valley Worsted Mills, Providence, R I.
Washington Mills Co, Lawrence, Mass.
Woonsocket Worsted Mills, Woonsocket, R I.

Woolen and Merino Yarns.

Brown, Wilson H, & Bro, Germantown, Pa.
Johnston & Farie, 132 South 3d St, Phila.
Guerin Spinning Co, Woonsocket, R I.
Sparta Woolen Mill, Sparta, Ill.

Yarn Dealers.

Abegg & Rusch, 90 94 Grand St, N Y.
Buckingham & Paulson, 83 Leonard St, N Y; 120 Chestnut St, Phila; 231 Jackson St, Chi.
Blythe, R A, 114 Chestnut St, Phila.
Chadwick, Jas & Bro, Ltd, 503 Broome St, N Y.
Croll, Albert Ivins, 85 Essex St, Boston.
Fox, H C, 45 Strawberry St, Phila.
Home Bleach & Dye Wks. Pawtucket, R I.
Johnston & Farie, 132 South 3d St. Phila.

Yarn Dealers.

King, Alex. & Co, 54 Leonard St, N Y.
Lane J H & Co 110 Worth St, N Y.
Mitchell, Jas F. & Co, 124 Chestnut St, Phila; 53 Summer St, Boston.
Robbins, Chas B, 56 Reade St, N Y.
Sampson, O H, & Co, Boston, N Y, Phila.
Sawyer, Manning & Co, 86 Franklin St, N Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston.
Taff, Alfred, 69 Mercer St, N Y.
Thompson, Sidney, 66 Grand St, N Y.
Tillinghast, Stiles & Co, 20 Market Sq, Providence, R I
Whiteside, Jas, 96 Spring St, N Y.
Winterbottom, Hyde & Co, 223 Chestnut St, Phila.

Mohair Yarns.

Thompson, Sidney, 66 Grand St, N Y.

DYERS, BLEACHERS, FINISHERS, ETC.

Carbonizers, Wool,

Clegg & Bro, Howard & Berks Sts, Phil, Pa
Hartley, F. Lawrence, Mass.

Cotton Dyers, Bleachers and Finishers.

Boston Finishing Wks, Williamstown, Mass.
Danvers Bleachery & Dye Wks, Peabody, Ms
Fall River Bleachery, Fall River, Mass.
Farwell Bleachery, Lawrence, Mass.
Greene & Daniels Mfg Co, Pawtucket, R I.
Harrison Yarn & Dyeing Co, Pawtucket, R I.
Home Bleach & Dye Wks, Pawtucket, R I.
Lewiston Bichy & Dye Wks, Lewiston, Me.
Lorimer's, The Wm H Sons' Co, Ontario and Lawrence Sts, Phila.
Mason, R D, Co, Pawtucket, R I,
Pawtucket Dyg & Bichg Co, Pawtucket, R I
Rockland Bleach & Dye Wks, Brooklandville, Baltimore County, Md.
Waltham Bichg & Dye Wks, Waltham, Mass
Way Dyeing & Finishing Co. Phila.

Silk Dyers and Finishers.

Knipscher & Maas, Gun Mill, Paterson, N J.

Yarn Dyers and Bleachers.

Cranston Worsted Mills, Bristol, R I.
Firth & Foster Bros, Kensington, Phila.
Haney, T G, & Co, Jewett City, Ct.
Home Bleach & Dye Wks, Pawtucket, R I.
Mason, R D, & Co, Pawtucket, R I.
Riverside Dye Wks, Riverside, N J.
Warren, W, Thread Wks, Westfield, Mass.
Worcester Bich & Dye Wks, Worcester, Mass.

Dyers and Finishers.

Firth & Foster Bros, Kensington, Phila.
Haney, T G, & Co (hosiery), Jewett City, Ct.
Riverside Dye Wks (hosiery), Riverside, N J.

Finishers of Worsted and Woolen Goods,

Firth & Foster Bros, Kensington, Pa.
Schwarzwaelder, L, 225 New St, Philadelphia

Block Printers.

Lexington Print Works, Canton, Mass.

Nap Finishers.

Boston Finish'g Wks, Williamstown, Mass.
Newburgh Bleachery, Newburgh, N Y.

Turkey Red.

Nashoba Mfg Co, Ayer, Mass.

RAW STOCK.

Cotton.

Abbreviations: b, buyer; br, broker; f, factor; c, commission; d, dealer.

BOSTON.

Barry, Thayer & Co, 32 India St.
Beebe, L & Co, d, 89 State St.
Storrow, Chas & Co, b, 53 State St.
Weld, Stephen M & Co, b, 89 State St.

NEW YORK.

Brady, Thos H. br 216 Church St, N Y.
Capelle, H, Rothchild Bldg, N Y.
Latham, Alexander & Co. m, 14 Wall St, N Y.

PROVIDENCE.

Deming, B H. & Co, br, 5 S Water St,
Hazard Cotton Co, Jeffrey Hazard, pres, 11 Market Sq.
Reynolds, F W, & Co, 13 So Water St,
Rhodes, J F & Co, br.
Wilcox, L Morton & Co, br, 28 No Main St

Bowles, Wm & Sons, Memphis, Tenn.
Gunther M H, b, 316 W Main St, Louisville, Ky.

Egyptian Cotton.

Blaisdell, Saml, Jr, Co, Chicopee, Mass.
Capelle, H, Rothschild Bldg, N. Y.

Cotton Waste.

Barlow, M T, 108 Pocasset St, Fall River, Mass
Coburn, Walter & Co, Lowell, Mass.
Hill & Cutler, 567 Atlantic Ave, Boston.
Hull, Saml E Millbury Mass.
Massasoit Mfg Co. Fall River, Mass
Mayo, A A & Co, Springfield, Mass.

Cotton Waste.

Olmstead & Tuttle Co, Chicopee, Mass.
Remick, T & Co, 489 Atlantic Ave, Boston.
Thorpe, John F, 185 Summer St, Boston, Mass

Peruvian Cotton.

Barry, Thayer & Co, 32 India St, Boston.
Grace, W R & Co, T H Higgins, Agt. 84 W Broadway, New York.

Silk Waste.

Heath, C A, & Co, 74 Grand St, N Y.
Heath, C A, & Co, Paterson, N J
Taff, Alfred, 69 Mercer St, N Y.

Australian Wool.

Hartley, Fred, 612 Atlantic Ave, Boston.

Wool.

Abreviations: d, dealer; c, commission; br, broker; p, puller; b, buyer; imp, importer; s, scourer.

BOSTON.

Bienenstok, S & Co, c, 204 210 Essex St.
Bond, G W & Co, b, 202 Federal St.
Brown & Adams, c, 152 Federal St.
Clark, R B, 230 Congress St, c and br.
Cordingly, W S & F, 559 Atlantic Ave.
Cross, Chas F & Co, d, 177 Purchase St
Eisenmann Bros, c, 287 & 289 Congress St.
Hallowell & Donald, c, 556 Atlantic Ave.
Harding & Caverly, c, 301 Congress St.
Hemmenway & Browne, imp, 87 Milk St
Luce & Manning, c, 138 Federal St.
Macnaughtan Co, c, 102 Federal St.
Wright, John G, 612 Atlantic Ave.
Blaisdell, S, Jr, & Co, Chicopee, Mass.

PHILADELPHIA.

Fry, Geo B, & Co, 223 No Front St, Phila.
Halvey, T F, Imp 50 & 52 No. Front St.
Hartley, Fred, 30 Letitia St.
Heston, H B, & Co, d, 118 Chestnut St.
Kitchen, Jas G, & Co, 55 N Front St.
Patton, Geo W, & Co, 38 N Front St.
Webb, Chas J, & Co. 156 N Front St
Wood Bros & Co, Imp, 27 N Front St.

NEW YORK.

Basch, Isaac, imp, 155 Duane St.
Grace, W R, & Co, Hanover Sq, N Y.
Macnaughtan Co, 212 Church St.
Mauger & Avery, br, c, 107 Reade St.
Mills & Co, br, 17 Wall St.
Ross, John, & Co, d, 105 Reade St.
Thompson's, Saml, Nephew & Co 142 Duane St,
Graves, Austin C, Albany.
Newman, Charles, & Co, p, Albany.
Schoellkopf & Co, p, Buffalo.
Straws, M, p, E Buffalo.
Hartley, Fred, 5 Mansion House Blk, Troy.

Hair.

Weeks, Chas R & Bro, 74 Murray St, N Y. All kinds for all purposes.

Mohair Dealers.

Cilley, J K, & Co, 101 Gold St, N Y.
Fisher & Lachlan, 42 Letitia St, Phila.

Noils.

Willey, J H, 139 N Water St, Phila.
Hall, Wm, & Co, 25 N Front St, Phila.

Cut Flocks.

Farnum, Jerome B, 127 Canal St, Providence, R I.

Wool Shoddies.

Basch, Isaac, 155 Duane St, New York.
Claremont Woolen Co, Claremont, N H.
Clegg & Bro, Howard & Berks Sts, Phil Pa.
Collings, Taylor & Co, Cleveland, Ohio.
E. Brookfield Woolen Co. E Brookfield, Mass.
Gray, T H & Co, 154 Federal St, Boston.
Little Falls Extract Co, Little Falls, N Y.
Mulhauser, F, & Co, Cleveland, O.
Slack, W H H, Springfield, Vt.
Smith & Cooley, Stafford Springs, Conn.
St Louis Woolen Mills Co, St Louis, Mo.

Wool Waste.

Bliss, Taft & Co, Norwich, Ct.
Dwight, Smith, 463 Atlantic Ave, Boston.
Farnum, Jerome B, 127 Canal St, Providence, R I.
Graves, Frank B, 467 Broadway, Albany, N Y.
Hull, Saml E, 112 Front St, Worcester, Mass.

Wool Combers.

Hamilton, W R & son, Lawrence, Mass.

Wool Pullers.

Malone, Jas C & Co, 138-44 14th St, Jersey City N J
N. E. Dressed Meat & Wool Co, 20 North St, Boston.
Vanderbeck, A, 404-12 E 45th St, New York N Y

Rags.

Abbreviations: w, woolen; c, cotton.

Keenan, John, 17-25 Richmond St, Boston.
Moynihan, J J, 570 Federal St, Boston.
Priest Bros, 353 Canal St, Providence, R I.
Sargent, Henry, 8 Wash'n Sq, Worcester, Mass
Lewy Bros, 140 Nassau St, N Y.
McNaught, W W, c, w, 467 Atlantic Ave, Boston
Berg, Isidore, 189 So 5th Ave, New York.
Meyers, Edw N & Bro, 141 Duane St, N Y.
Rawitser, S. & Co, 140 Duane St, N Y.
Allen, Wm F, & Co, 132 N Front St, Phila.
Dodgson, H, & Co, c, w, 152 S Water St, Phila.
Kenworthy, B, & Co, 150 N Front St, Phila.
Kenworthy, T, & Bro, 111 Church St, Phila.
Neufeld, David, 1149 N Front St, Phila.
Sullivan, L. & Co, c, w, 612 St John St, Phila.

Tailors' Clippings, Seamed Cloth, Etc.

Levy, Geo A & Co, 20 Lincoln St, Boston
Moss, A, 131 & 133 Fulton St, Boston.

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The advertisers in the following columns should be addressed in care of Textile Mfg. World, or inquiries concerning them may be addressed directly to "Information Department, Textile Mfg. World," as full particulars of each advertiser are on file, and the addresses of suitable agents, superintendents and foremen for every branch of the textile industry will be furnished to manufacturers.

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The business of this department is held strictly confidential.

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Manufacturers are invited to use this department when in need of skilled men; each case will be handled confidentially, with promptness and judgment, and without charge to manufacturers.

COTTON SUPERINTENDENTS.

568 **Has had extended experience** in best New England mills; either as superintendent or carding overseer; very best references. Shirtings, sheetings, twills, white and colored.

679 **Ginghams or white** work in New England mill. Age 36, married. High reputation won by unusually successful career. Nothing less than $2500.

764 **Agent or superintendent,** has worked on threads and yarns, leno goods, lawns, satteens, etc., excellent references. Age 33 and married. Wants greater responsibility.

822 **Cotton flannels, all grades.** Desires position as superintendent, or assistant superintendent. Age 33; married.

934 **Ginghams, cotton dress goods,** shirtings, cotton and woolen, both fine and coarse, also cheviots. High up in his knowledge of these goods. Experience gained in Scotch mills. Is a practical dyer and finisher, and a practical designer. Desires a position as agent or superintendent, or as superintendent and designer. Age 42; married.

1010 **Wants position as overseer** in large mill or superintendent in a small mill. Strong point weaving. Good man. Is 42, and married.

1016 **Very desireable man,** wishes a superintendency. Strong point weaving, spooling, warping and dressing, but has also done good work in designing. Shirtings, sheetings, ginghams, ducks, demins, etc., etc. Is 35 and married.

COTTON CARDERS.

287 **Very Capable Cotton Carder;** age 42; married.

502 **Is an excellent overseer** on combed, carded, or colored stock; was in charge of a few of the best rooms in the country. 46 years of age, salary very moderate.

645 **Coarse and fine,** colored and white. Brought up in good mills. Thoroughly understands all makes of machinery in his department.

796 **Spinning or carding or both.** Good man, good record, prefers New England or Middle states, 45 years old, married, Salary $3.00 or so.

811 **All grades, carded, combed** white and colored. Is not afraid of rapid changing over. Good references, good experience.

824 **Good man for overseer** in medium or small mill, or for second hand in any large mill; good at figuring; good references.

826 **Has worked in best New England** mills; as second hand, and capable of taking an overseership in medium or small mill. Age 31.

835 **Overseer or second hand.** Has been second hand in some of the leading corporations in Mass. Salary, lowest, $2.75 per day.

839 **First Class Man, Small Mill.** Has worked on rope, twine, warps and hosiery yarn; white and colored. Age 30; married; salary $2.50.

910 **Is a good carder** on plain, colored and fancy white stock. Age 41. $2.50 and up.

922 **All kinds white or colored** from 1 2 to 14 hank. First-rate experience and references. Age 44, married. Salary $3.50.

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555 **Ring spinning,** spooling, warping, twisting, reeling, winding and quilling. Age 38, married.

560 **Warps 4's to 60's.** Fillings, 16's to 30's Ring spinning. $4.00.

569 **Mule or Ring Spinning;** overseer. Has worked in good mills. Good references. Age 30; married; salary $3.00.

660 **Every variety** of yarns known to cotton manufacturing. Mule spinning, but will take rings with mules.

703 **Twisting frames** thoroughly understood by young man wishing employment as overseer or fixer. Single, fair salary.

724 **Ring Spinner** with good experience in mills of high standing. Well recommended. Married, 31 years of age. Fair salary.

735 **Mule or frames.** Age 43, married. 8 years in firstclass Rhode Island corporations. Can take position at once at fair salary.

766 **Overseer of mules and frames** has had experience in hosiery and all kinds of cloth mills, excellent references. 52 years of age, and married. Salary moderate.

COTTON WEAVERS.

176 **South preferred.** Understands fixing a loom, and not afraid to do it. Gets on well with Southern help.

429 **Has worked on fine goods** of all kinds as overseer. Salary according to position. Age 28.

500 **Had to leave** the South on account of health. Wants Northern room. Colored work, quilts, Jacquard, etc. $3.00. Age 40, unmarried.

539 **Excellent manager** of help. Splendid record of production. Plain and colored work. Twills, ginghams. Age 35, married.

684 **Likes West or South.** All grades of brown goods or fine sheetings. Age 36, married.

711 **Southern, Western States** or Penn. prefered. Has had good experience on all kinds of heavy white or brown goods. Age 40, married. Pay moderate.

726 **Capable overseer** with experience on points, sheetings, twills, and sateens. Married, age 35.

837 **Sheetings, twills, sateens,** fancy goods, and leno. Age 34, married.

WOOLEN SUPERINTENDENTS.

654 **Cloakings, Cassimeres,** dress goods, flannels. Graduated from the weaving department; age 32, not married. Moderate salary.

760 **Superintendent or Asst. Superintendent** and designer, has worked on fancy cassimers, cheviots, and meltons. Age 31 years, married. Salary moderate.

771 **An excellent Supt.** for any woolen mill needing a man with his experience on cassimeres and dress goods. A good manager of help. Salary moderate.

781 **Thoroughly understands fabrics.** Superintendent and designer for many years in England and America, on all kinds of plain and fancy woolens and worsteds. Is married. Prefers to go South or West.

791 **A 1. Ranks high because** of his life long and minute acquaintance with all kinds of worsted yarns. Native of France, 42 years old. Held responsible managing positions abroad. Salary $2000 or will take interest with responsible parties. Investigate.

803 **Is in the first ranks,** very able, good references; experience on all kinds of mens wear and dress goods; 33 years old and married.

809 **American, 34 years of age,** trained in foreign technical schools and mills; is practical in all branches of worsted yarn manufacture and is a good machinist. Desires position as overseer, assistant superintendent or superintendent.

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707 **Fine Flannel and Dress Goods** stock understood. A capable man, 35 years old, single. $3.00.

710 **Low stock his strong point,** but has carded all kinds of stock. Age 40; married. Salary $3.00.

738 **Boss Carder.** Knitting mill preferred. References excellent. Age 38 years.

762 **All kinds of goods,** is 50 years of age and married, will go anywhere except to the South, the West, or to Canada. Pay moderate.

776 **Has carded principally** for knitting mills, but also on cassimere and dress goods stock. Is 28 years old, and married. A desirable man. Pay moderate.

777 **Prefers west** of the Alleghany mountains, has worked on nearly all kinds of woolen goods. A trial will prove him a desirable man. Age 50, married.

787 **Capable man.** Carder. 42 years old, married. Good experience and well recommended. Has worked on beavers, cassimeres, dress goods, all kinds of mixes and hosiery.

797 **Will go anywhere,** trained under good men when second hand, experience in good mills since. Strong acquaintance with flannels, shawls and cassimeres. Age 33, married, salary $3.00.

833 **Carded fine flannel and ladies** suiting stock. Prefers Mass., R. I., or Conn., to work in. Is 27 years old and married; salary $3.00.

836 **Strong point, hosiery,** but has also carded extensively for dress goods, flannels, tweeds, etc. Age 35. Salary moderate.

913 **First class woolen carder** hosiery, dress goods, overcoatings, cloakings, cassimeres, (all wool and union), kerseys, meltons, etc. 35, married. $3.00 and up.

WOOLEN SPINNERS.

222 **First Class Overseer,** has worked on all classes of goods and in some of the most successful mills. Age 30; married.

685 **Fancy Yarns** as well as all grades of woolen. Just out of position through stoppage of mill. Age 37, married.

697 **Smart young man.** Good mule fixer, and had charge. Age 34, married. $2.50 per day. All grades of stock.

747 **Highest references** as a boss spinner for 12 years. Has worked on all kinds of goods.

780 **Wide experience** as boss spinner on variety of stocks: Johnson & Bassett, Davis & Furber, Woonsocket Mule, and the Wright Spinner. 28 years old and single; best of references. Will not go West or South. Salary moderate.

941 **A Very Efficient Man.** Used to most every class of woolen goods; age 28, married. Salary moderate.

WOOLEN WEAVERS.

104 **American.** Practical and hard working. Good knowledge of designing, gets along well with help, understands looms thoroughly. Fancy cassimeres, shawls, dress goods.

176 **American Boss Weaver;** good manager of help. Has worked in cotton, woolen and jute mills. In cotton on 3 harness drill, plain duck, osnaburgs, sheetings, shirtings, etc; in woolen, 5 harness Kentjeans, linsays, etc.; in jute, on bagging; age 40; married; temperate, with good references. Salary moderate.

614 **Boss weaver and designer** has had a wide experience on cassimeres, dress goods, worsteds, casket cloths, beavers, flannels, blankets, doeskins, satinets and jeans. 45 and married. Salary $3 or so.

WOOLEN WEAVERS.

702 **Reliable overseer** of weaving. Son is loom fixer. Worsteds, shawls, flannels, all kinds of woolen goods, ginghams. Good references. Age 50, married.

741 **Woolen and Worsted Weaver** on fancy worsted, cassimere and dress goods. Good references.

920 **Worked in some of the best** N. E. mills. Dress goods, unions, cassimeres, worsteds and cheviots. 28, and married. $3.00 or so.

1004 **Now in the West,** good weaver. Experienced also in the best Eastern mills. Has worked on cassimeres, meltons, cheviots, beavers, cloakings, worsteds. Is 38 and married.

1008 **Wants boss job in flannel mill.** Northern New England preferred, also a good man for dresser or fixer, has worked on flannels, serges, cheviots, fancy dress goods. Is 34, married.

WOOLEN FINISHERS.

193 **Woolen Finisher of first rank,** all classes of woolens from loom to case. Age 44; married.

358 **Heavy overcoatings,** beavers, chinchillas. Never held overseer's position, but second hand in fine mills. Would start low.

783 **Competent overseer** of wet and dry finishing. 46 years old, married. Has first-class recommendations. Many years experience on all classes of goods. Wishes to remain in New England. Fair salary.

828 **Desires a position in finishing** room; as second hand preferred. Is bright, intelligent, and capable of an overseer's position, acquainted with flannels, fancy suitings, cassimeres, overcoatings, carriage cloth, fancy mixed beavers. Age 28.

832 **A young finisher** desires a position as overseer. Has worked on all wool cassimeres, suitings, dress goods and cloakings, worsted suitings, and cotton and worsteds, union cassimeres and low grade shoddy. Age 28; married. Salary $5.00 or so.

905 **Chinchillas,** Wants position in charge of finishing. Has knowledge of about 150 styles in this line. Age 33; married. Pay moderate.

1007 **Dress goods and fine meltons** prefered, but has worked on all kinds woolens. N. Y. or N. E. states. Age 22, salary moderate

Finisher or second hand wants position, familiar with all kinds of woolen and worsted goods, Edward Wattslong, 11 Otis St. Boston care Chas. Wattslong.

DYERS.

742 **Cotton, Wool and Worsted Yarns** all colors. First class references. Age 43, married. Salary $35 per week.

774 **Worsted yarns, blue vats** pure woolen piece goods his strong point. Wants position as overseer. Age 34, four years experience in Rockville, Conn.

784 **Has good references.** Many years experience on dress goods, indigo blue, raw wool, yarn and piece dyeing. Married. Prefers eastern and middle states. Moderate salary.

793 **Boss dyer or second hand** has had experience in high standing mills on cotton and woolen dress goods. Age 23, salary $3.00 or so.

794 **All classes** of knit goods, and no better man for the work. Age 40, when a man's at his best. Married.

795 **Ten years experience,** strong point. skein, warp, hosiery yarns and long chain. Laboratory experience extensively on raw stock; 30 years old.

798 **Now employed,** giving good satisfaction; Age 28, married, experienced on wool, woolen and worsted yarns and piece goods, cotton and cotton yarns.

804 **All kinds of fancy woolen dyeing,** woolen and worsted skein, and piece; high or low grades, and raw stock.

806 **Has colored hosiery,** woolen yarn, piece goods, slubbing, raw stock and run indigo vats with success. Salary moderate.

808 **Cheviots, demins, cottonades,** checks, ginghams, shirtings, tickings; is 39 years old and married.

818 **All wool and merino hosiery,** carpet yarns, raw wool, rags, shoddy, and mixed goods. Age 30; married. Salary $3.00 or so.

831 **Experienced on woolen dress** goods and fancy cassimeres. Age 34. Salary $2.50 per day, or so

904 **Worsteds, Meltons,** mixtures, and cassimeres. Is a good stayer. Married; with a family; age 44. Wages $3.50 or $3.00.

928 **Foreman dyer and finisher** of knit goods. Very extended experience on all kinds of cotton, wool, and mixed goods, in hosiery, underwear, and overshirts.

937 **Boss Dyer of the very First** Rank Strong points; cotton, woolen, and merino yarns, raw cotton and wool, all kinds of hosiery.

939 **Yarns, Piece Goods and Hosiery.** First class man in every respect. Age 37.

1013 **Dyer on wool yarn and piece.** Is 43 and married. Has had 25 years experience in some of the principal woolen mills in Germany.

1022 **Second hand** in dye house. On knit goods.

DESIGNERS.

197 **All kinds of goods.** Age 34, unmarried. Past ten years has had great experience.

690 **Designer.** Fancy worsteds, cassimeres. Would also like the position of assistant superintendent. Refers to any firm ever worked for. $1200 or upwards.

760 **Desires advancement** in responsibility. Superintendent or Asst. superintendent and designer. Salary moderate; experience on fancy cassimers, cheviots and meltons. 31 and married.

755 **Young and Ambitious,** has worked on fancy cassimeres and cheviots, but principally worsteds. Would take a position as designer.

825 **First-class experience, English** mills, 4 years as assistant designer, and 3 years as designer and assistant manager. Fancy worsteds, woolens, serges, etc. Young man.

834 **Could introduce some good** things he claims, either in fancies, coatings, viennas, Llamas, etc. Practical training acquired in England.

Dyeing and Finishing Plant for Sale,

NEAR BOSTON.

A DESIRABLE PLANT FOR THE

Dyeing and Finishing of Cotton Fabrics, including Yarns, Hosiery, Silesias, Sateens and Jersey Cloth. Buildings are new, and mill construction in first-class order; fitted with sprinklers, fire-pump, engine and boiler (125 h. p.) and shafting. Dimensions, two stories 100 x 40 feet, one story 96x32, and one story 50 x 35; with engine and boiler house. Water supply is excellent. The dyeing and finishing machinery will be sold either separately or with real estate. Railroad and shipping facilities are first class. Address, P, 134, care of Textile Mfg. World, Boston.

PRACTICAL

Cotton Manufacturer

WANTED! To correspond with an experienced and practical "Cotton Mill Man," possessed of some capital to invest in a cotton mill and operate the same. The mill is not only in perfect running order but is also most favorably and beautifully located adjoining the city. Address C. L. Stadtler, Pres. Excelsior Manufacturing Company, Cuero, Texas.

Amount of capital not so important as to secure the right man who is capable of running the business successfully.

CAPITAL WANTED. Two practical machinists having 25 years experience and having been **10 years in business for themselves,** having a good trade in all manufacturing cities, and **control of valuable patents,** want a third party with a capital of $10,000 or backing to that extent. Willing to locate East or in Philadelphia. For particulars address, Capital, Textile Mfg. World, 240 Chestnut Street, Philadelphia, Pa.

Color Mixer and Printer.

We want a man who is a color mixer and can print on silks.

Address with full particulars, Mess. B. A. & C, care Textile World.

KNITTERS.

Situation Wanted. By a man of twelve years' experience as foreman of fixing, running circular and flat knitting machines on stockinet, elder down, rubber linings, warp machines and silk glove fabrics, and also experienced in the manufacture of dress and upholstery trimmings. P. 123

767 **Overseer of knitting,** has had a large experience on hosiery, will go any where. Pay moderate. Age 32, and married.

773 **An experience** on all kinds of underwear and plush. A good man, 45 years old and married. Overseer's position anywhere except the South.

673 **Superintendent of woolen hosiery.** Practical knitter and dyer. Large mill wanted. $4.00 per day.

721 **Superintendent** with good practical experience on fine and coarse seamless hosiery and mittens, unmarried, age 25 years. Pay $3.50 per day.

723 **Knitter or fixer,** has worked on stockinets, jersey cloth, rubber linings and fancy goods. Age 22, $15.00 or $18.00 per week.

769 **Capable manager** for any underwear mill wants a more responsible position, would especially desire to help start up a mill on ribbed goods.

772 **Boss knitter,** has worked as overseer in northern New York mills, experiance on wool and cotton, heavy and light underwear. 31 years old, married. Pay very moderate.

815 **Superintendent** rib, circular, or fashioned. Underwear and hosiery, cotton, merino and worsted. A good man. Age 45.

830 **All classes cotton and woolen** hosiery. 28, and married. Salary $3.00 per day, or so.

915 **Wants position as boss knitter** or superintendent in hosiery mill. 21 years old, unmarried, salary $3.00 and up.

MISCELLANEOUS.

717 **Overseer on Noble combs.** As such can give satisfaction. Has had extensive experience on all grades carpet wools, shades and fancy mixes. Unemployed as mill shut down. Age 35. $3.00.

737 **Twisting Reeling and** Winding, either ring or flyer frames sewing thread, carpet warp, cotton flax or hemp.

782 **Temperate and steady.** Dresser tender. 38 years old, single. Many years experience on worsted coatings, cassimeres and dress goods. Good references; moderate salary.

800 **Office or cloth room,** thoroughly understands the cotton mill from this end. Desires paymaster's or some like position; 36 years old; married, salary moderate.

838 **Pattern Weaver.** Woolen, worsted and silk dress goods, always on Knowles looms.

840 **Beaming or Charge of Beaming.** Has worked on ginghams, tickings, shirtings and dress goods. Age 29; married; salary as beamer $2.50; in charge $3.75.

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Young Men and Women; improve your condition in life by learning **Shorthand, the Stepping Stone** to prosperity. Anyone can learn in 20 easy lessons. Complete Instructions with Engraved Lessons only $7.50. Send for partulars.

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RARE OPPORTUNITY!

Knitting Plant

FOR SALE.

Situated in a Western city; trade fully established with the best houses in the United States. Use all Lamb Machines and make Ladies', Misses' and Children's garments; Balbriggan, Wool, Silk and Merino. Had more orders than the mill could fill, last year.

Stock company, would sell part of the stock to the right party who would take charge of the business, but such a party must have experience. Present owners desire relief; too much other business. This offer will bear investigation. Address "K," Textile World Office.

WHO

Has Not Been Making Money?

A successful superintendent and designer desires to associate himself with some manufacturer operating a mill of from three to eight sets capacity, who has not been running very successfully, and wants a man to manage his mill, do the superintending, designing, etc. With the right party an arrangement will be made to take a percentage of profits for salary. Have a certain line and grade of goods upon which I have great confidence I could boom a medium sized mill and make good profits, even in these hard times, and with the employment of comparatively small capital. I know what I am talking about, and would like to hear from some manufacturer who has a well equipped mill, and some courage left, as I feel confident I can show him a good chance to make money, and at the same time do well for myself.

Address "ENTERPRISE," Care Textile World.

Valuable Mill Site.

AT SALEM, 2000 ft. frontage on Salem Harbor, with wharf 265 ft. in length for landing coal or materials. Track connection can easily be made with the B. & M. and Lowell R. R. systems, a few hundred feet distant.

The property comprises 12 acres of solid upland located next eastward of the coal piers of the Philadelphia & Reading Coal & Iron Co.

A brick factory and engine room 50x125 ft. brick chimney, 100 H. P. engine, shafting, &c. 110 H. P. boiler. Wooden warehouse 50x100 ft., iron sheathed, 2 stories with elevator.

2 wooden buildings 80x15 ft. and 25x10 ft.

Large dwelling house, barn and stable. City water supply from Wenham Lake. For sale by Lamont G. Burnham, Boston; Henry W. Peabody, Boston; Henry C. Piper, New York, Trustees.

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Unfailing water power at a very low price. Abundant supply of reliable operatives. Railroad track to the mill yard. Exemption from taxation for 10 years. Address J. W. HARMON, Agent Bodwell Warte Power Company, Old Town, Maine.

FOR SALE.

Cotton and Woolen Machinery.

Largest lot in store to be found in this country. Storehouses with over two acres of floorage.

JEREMIAH CLARK
64 Dutton Street, Lowell, Mass.

FOR SALE!

Second-hand Woolen Machinery.

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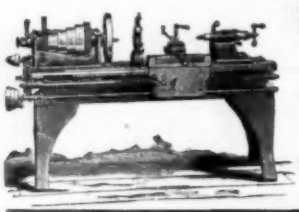

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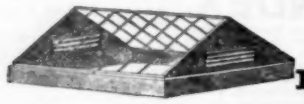

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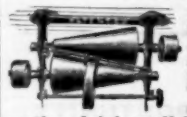

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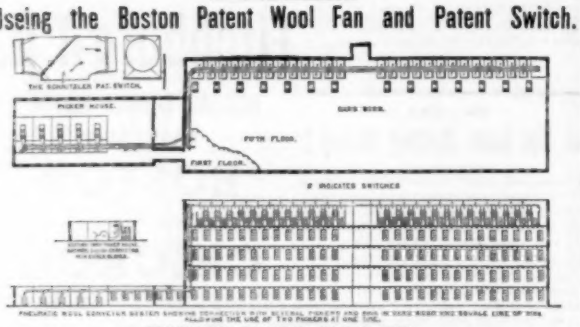

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MILL NEWS.

See also Page 24.

New Mills.

Cotton.

—ALABAMA, Anniston. A new cotton mill is talked of at this place. Howard W. Sexton and Julian C. Keith are interested.

—*ALABAMA, Eufaula. Work is progressing rapidly on the Chewalla Cotton Mills, and the company is about ready to purchase machinery. J. P. Fay is president of the company.

—GEORGIA, Carrollton. A cotton mill is talked of at this place. J. P. Moore can give information.

—GEORGIA, Savannah. The Southover Land Co. has begun to put in practical operation its plan for building a 30,000 spindle yarn mill.

—NORTH CAROLINA, Waco. We understand that a new cotton mill has been started at this place, and will be completed about the first of June.

—SOUTH CAROLINA, Abbeville. We are authoritatively informed in regard to the new cotton mill at this place, reported last week, that it will be incorporated and organized at once. P. Rosenberg & Co., W. J. Smith and J. C. Klugh are interested. They will build a new structure, putting in about 5000 spindles, using steam power. Liberal inducements will be offered to several large New England mills to join in the enterprise. The capital stock will not be less than $100,000 and may be increased to $250,000.

—*SOUTH CAROLINA, Lockhart Shoals. The Lockhart Mfg. Co., which was incorporated last May, has started the foundation for their new cotton mill. Col. C. D. Farrar is president of the company, John C. Cary, of Seneca, is treasurer and manager.

—*SOUTH CAROLINA, Wellford. A company will be organized under the name of the Tucapau Mills Co., to erect a cotton mill at this place. A commission for its charter has been issued. The incorporators are C. E. Fleming of Spartanburg, J. B. Cleveland, D. E. Converse, J. E. Moore and J. W. Carlisle, also of Spartanburg, and H. E. Revenel of Wellford. The company has a capital stock of $150,000 with right to increase to $500,000.

Woolen.

—*COLORADO, Trinidad. The woolen mill, which we reported in December Eastern woolen manufacturers contemplated building at this place, is to be started this year by F. F. Warren.

—MASSACHUSETTS, Haverhill. Protector Rubber Felt Boot Co., R. M. Boody, 7 Clinton St., rubber felt boots, writes us that they have not yet contracted for wool cards, 40 inches, fulling stocks, shafting, pulleys, belting, wool burrer, mixing picker, duster, and rubber machinery to be used in the manufacture of rubber boots, etc. Address R. M. Boody.

—MASSACHUSETTS, Lawrence. Fred Ertinghausen, formerly a designer in the Washington Mills, will open a small weaving plant with designing school in the new building of Joseph E. Watts, on Lowell Street, about the middle of March. He will manufacture fine woolen goods for men and women's wear.

—MASSACHUSETTS, Monson. William Fay, who recently leased a mill on Silver Street, will commence the manufacture of shoddy as soon as arrangements can be made.

—MASSACHUSETTS, Webster. The Webster Valley Woolen Company is the name of a new concern organized to manufacture fancy woolen pantaloon goods. Andrew W. Walker is manager. They will run 12 looms at present and more will be put in.

—MICHIGAN, Carsonville. A. Brown, of Downington, has been at this place looking over the prospects for a woolen mill.

—ONTARIO, Campbellford. Mr. John Routh has purchased some property at this place and started the erection of a building for a new woolen mill.

—ONTARIO, Limehouse. John Newton & Sons, whose woolen mill was burned last October, are contemplating starting up again. They are negotiating for the purchase of a planing mill owned by Wm. Law son, of Stewarton.

—RHODE ISLAND, Harrisville. Work will be commenced at once on the mill of William Tinkham & Co., which was destroyed by fire in January. The building will be four stories high, 300x100 feet.

Knit.

—GEORGIA, Rossville. A knitting mill and rope factory are to be built at this place by J. N. Walker.

—IOWA, Des Moines. The Des Moines Mills Co. has been incorporated with capital stock of $100,000. They will manufacture all kinds of hosiery, cotton and wool. They will put in improved machinery and employ about fifty persons to start, increasing in a short time. H. M. Rollins, James Callahan and J. B. Elliott are members of the company.

—NEW HAMPSHIRE, Laconia. Fred Rowe has started to manufacture hosiery in the building formerly occupied by the Laconia Mfg. Co.

—NEW HAMPSHIRE, Tilton. George H. Tilton, proprietor of the Granite Hosiery Mills, is reported as contemplating starting the manufacture of cotton goods, probably in an old mill now idle.

—NORTH DAKOTA, Fargo. At a recent meeting of the Board of Trade a communication was read from an eastern man relative to starting a knitting mill at this place. He stated that he would put in about $1000, the mill to cost in the neighborhood of $8000.

—*VIRGINIA, Newport News. Work will be commenced at once on the new knitting factory at this place of Messrs. Godwin & Stewart, of Norfolk, Va. The building will be 40x120 feet, two stories. They will manufacture ribbed underwear.

Silk.

—NEW YORK, Rochester. Hutchinson & Weldon, both members of the firm having been employed by the Vogt Mfg. Co., dissolved partnership in January. G. W. Weldon is now fitting up a new mill independent from the old concern at 119 Main St., and expects to get started about the 1st of April.

Miscellaneous.

—MASSACHUSETTS, New Bedford. Reliance Mfg. Co has started business in the second story of the old rivet factory on Rivet St., they will manufacture ring and twister travellers, paper cop and taper tubes, cones and parallels. In the spring two stories will be added and the plant will be enlarged as fast as business will permit.

—MICHIGAN, Niles. The Niles Boot Co. has been organized to manufacture felt boots. Capital $25,000. The factory will be started in about two months.

—NEW JERSEY, Lake View. A certificate of incorporation of the Lake View Ribbon Co. was filed February 21, with capital stock of $25,000 of which $10,000 has been paid in. The incorporators are Andre Cardinal, George W. Smith, Rudolph Matthies, and A. J. Van Riper. The business will be carried on in this city and in other cities in New York and Philadelphia.

—*PENNSYLVANIA, Pottstown. The Bannockburn Mills, a new concern which we have reported several times, have applied for a charter and will erect new buildings in the early spring. John C. Watt and J. Howard Bromley, of Philadelphia, will bring in their 265 looms, together with all the adjunct machinery, as soon as the buildings are completed. This machinery with the $21,000 subscribed in Pottstown, constitute a capital of $70,000. Mr. Watt will be the manager. His address is 800 So. 11th St., Philadelphia.

—PENNSYLVANIA, Reading. The Reading Braid Co. has been chartered, and organized with the following officers: Frank S. Livingood, president; Chas. M. Steinmetz, secretary and treasurer; Frederick Kline, manager. The company will manufacture ladies' trimmings and braids from silk, mohair and worsteds. They will occupy the third floor of building of the Reading Box Co., 239 Cedar St., and another story will be added to the building.

—WISCONSIN, Albany. The linen mill which has recently been built at this place by A. D. Flemming is now in operation in part. Mr. Flemming did not complete the mill in time to get his $10,000 bonus promised by the people, but he expects to run the mill notwithstanding.

Enlargements and Improvements.

Cotton.

—ALABAMA, Huntsville. The West Huntsville Cotton Co. are preparing to double their operative force running night and day. Additional tenements are being erected to accommodate the help and it is not at all improbable that they will enlarge their capacity.

—ALABAMA, Selma. The Matthews Cotton Mills Co. are putting in a new compound condensing engine of 600 H.P. They are constantly putting in new machinery and it is probable that they will double their capacity within the next two years.

—CONNECTICUT, Willimantic. The Smithville Mfg. Co. are, we understand, preparing to completely renovate their mill, and to put much new machinery in every department. The work will probably be begun in the spring.

—LOUISIANA, New Orleans. The Alden Knitting Mills will add some new machinery of the latest improvement, and a power plant which will double its present capacity.

—MASSACHUSETTS, Fall River. New machinery is being placed in the mills of the Union Mfg. Co.

—*NEW YORK, Utica. The Mohawk Valley Cotton Mills have completed the new addition to their mills and are putting in the machinery. An engine of 900 H. P. is being placed.

—NORTH CAROLINA, Haw River. The Granite Mfg. Co., has decided to double the size of its mills. Work will be commenced in the early spring. They manufacture ginghams.

—NORTH CAROLINA, Mooresville. The Mooresville Cotton Mills, a new concern which commenced production last November, will increase its capital $10,000. They will enlarge their mill building and put in new looms.

—QUEBEC, Valleyfield. The Montreal Cotton Co. are building a new bleach house and weave shed. They will put in about 1000 new looms.

—RHODE ISLAND, Slatersville. It is reported that the Slatersville Mills will build a new weave shed, and will put in 220 new looms.

—SOUTH CAROLINA, Blacksburg. One hundred looms will be added to the plant of the Cherokee Falls Manufacturing Co.

—SOUTH CAROLINA, Pacolet. The No. 3 Mill of the Pacolet Mfg. Co. will put in 226 additional looms.

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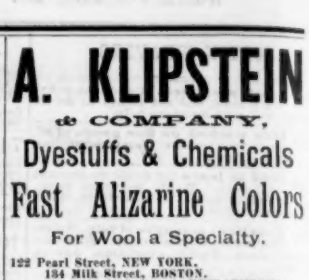

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